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AUTHOR Lockheed, Marlaine E.  
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## ABSTRACT

The Beginning Teacher Evaluation Study (BTES), Phase II, was a research project on effective teaching behavior--what teachers do that significantly affects what and how pupils learn. The purposes of Phase II were to (1) develop an assessment system for measuring teacher and pupil behaviors and other factors which could influence each of them and their interrelationships and (2) generate hypotheses about the interrelationships among teacher and pupil behaviors and related factors. Forty-one second grade and 54 fifth grade experienced teachers participated in the study. This volume of the final report investigates the following issues using the framework of a longitudinal, non-experimental design, and a production function analysis: (1) what are the determinants of self-induced teacher expectations, and (2) what is the magnitude of the consequences of such expectations on pupil performance. The findings suggest that although self-induced teacher expectations are generally well founded, and not negatively biased against minority students, males or females, when teachers hold higher versus lower expectations for similar students, the difference in the subsequent achievement can be as much as one standard deviation apart. This finding suggests that although the correlations between teacher expectations and subsequent student achievement are low, they should not be overlooked, as the impact on student achievement can be substantial. (RC)

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BEGINNING TEACHER EVALUATION STUDY  
PHASE II 1973-74

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FINAL REPORT

VOLUME V.2.

SOME DETERMINANTS AND CONSEQUENCES OF  
TEACHER EXPECTATIONS CONCERNING  
PUPIL PERFORMANCE

BY

MARLAINE E. LOCKHEED



EDUCATIONAL TESTING SERVICE  
PRINCETON, NEW JERSEY

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FINAL REPORT: VOLUME V.2.

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Educational Testing Service  
Princeton, New Jersey

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for the California Commission for Teacher Preparation  
and Licensing and funded by the National Institute of  
Education.

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## PREFACE

The Beginning Teacher Evaluation Study (BTES) is a long-term project of the California Commission for Teacher Preparation and Licensing. The Commission is responsible for licensing teachers in California and is trying to determine what factors should be considered in this process.

The second phase of the study was conducted by Educational Testing Service for the Commission. Phase II was the hypotheses-generating and instrument-development phase of BTES. ETS had two tasks: (1) to develop an assessment system to measure both teacher and pupil behaviors as well as other factors which might be related to these behaviors; and (2) to generate hypotheses about the interrelationships between teacher and pupil behaviors and related factors.

The study was conducted in 43 schools in eight districts throughout the state of California. A total of 41 second grade teachers and 54 fifth grade teachers participated in the project during Phase II.

The final report for Phase II consists of several volumes. Volume I describes the design and rationale for the experimental design and data analysis procedures and includes the major findings of Phase II. Volume II describes the conduct of the field study and the sample of participants.

Because of the complex nature of Phase II, a variety of techniques was used to measure teacher and pupil behaviors. They are described in Volumes III, IV, and V. Results are also included in these volumes.

Volume III describes the observation systems in detail and is available in three separately bound sections. The first section, Volume III.1., describes the behavior recording observation system used in the project--APPLE (Anecdotal Process for Promoting the Learning Experience). Volume III.2. describes the category system used to observe classroom activities--

RAMOS (Reading and Mathematics Observation System): The third section of this volume, III.3., covers the videotaping of instructional activities during reading and mathematics.

Volume IV concerns other aspects of the measurement system and covers both the pupil and teacher test batteries.

The fifth volume covers a series of small studies done as part of Phase II. Volume V.1. looks at teacher aptitudes as related to teacher behaviors. Volume V.2. is concerned with the relationship between teacher expectations and pupil performance. Volume V.3. reviews performance of pupils in the BTES teachers' classrooms for two years prior to Phase II, the historical test data. Volume V.4. discusses the Diagnostic Film Test, a device designed to assess teachers' skills in diagnosing reading problems and prescribing corrective action. Volume V.5. summarizes the results of work diaries completed by the teachers on their reading and mathematics instructional program.

Information on the availability of these volumes can be obtained from:

Dr. Frederick J. McDonald  
Educational Studies  
Educational Testing Service  
Princeton, NJ 08540

Information on other phases of BTES can be obtained from:

California Commission for Teacher  
Preparation and Licensing  
1020 O Street  
Sacramento, CA 95814

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Marlaine E. Lockheed

# TABLE OF CONTENTS

	Page
Preface . . . . .	i
Acknowledgements . . . . .	iii
Some Determinants and Consequences of Teacher Expectations Concerning Pupil Performances . . . . .	1
Review of the Literature . . . . .	1
Theory . . . . .	7
Procedures . . . . .	9
Subjects . . . . .	9
Data Collection . . . . .	10
Measures . . . . .	10
Teacher Expectation . . . . .	10
Student Status Characteristics . . . . .	11
Student Achievement . . . . .	11
Limitations of the data . . . . .	12
Analytic Method and Results . . . . .	12
Determinants of Teacher Expectations . . . . .	12
Teacher Expectation Effects on Student Learning . . . . .	27
The Effect of Teacher Expectation on the Average Student . . . . .	33
Student Expectation Effects on Student Achievement . . . . .	39
The Process of Change . . . . .	39
Summary . . . . .	43
What Student Characteristics Provoke Differential Teacher Expectations? . . . . .	43
What is the Effect of Teacher Expectations on Student Achievement Change? . . . . .	44

References . . . . .	47
Appendix A: Correlation Matrices . . . . .	53
Appendix B: Regression Results . . . . .	71



# LIST OF TABLES

Table	Page
1 Means and Standard Deviations of Variables in Reading and Mathematics . . . . .	14
2 Some Determinants of Teacher Expectations, Grade 2 - Reading . . . . .	17
3 Some Determinants of Teacher Expectations, Grade 2 - Math . . . . .	18
4 Some Determinants of Teacher Expectations, Grade 5 - Reading . . . . .	19
5 Some Determinants of Teacher Expectations, Grade 5 - Math . . . . .	20
6 Grade 2 - Reading Variables by Expectation Level . . . . .	23
7 Grade 2 - Mathematics Variables by Expectation Level . . . . .	24
8 Grade 5 - Reading Variables by Expectation Level . . . . .	25
9 Grade 5 - Mathematics Variables by Expectation Level . . . . .	26
10 Regression Results for Grade 2 Reading . . . . .	28
11 Regression Results for Grade 2 Mathematics . . . . .	29
12 Regression Results for Grade 5 Reading . . . . .	30
13 Regression Results for Grade 5 Mathematics . . . . .	31
14 Regression Results Used for Computing Estimated Spring Scores from Fall Scores . . . . .	34
15 Correlations of Teacher Expectations With Residual Achievement (from Appendix B) . . . . .	35
16 Estimates of the Contribution of Teacher Expectations, Self Expectations and Attitudes, and Selected Demographic Characteristics to Residual Achievement of Students Achieving at the Mean (plus or minus one-half standard deviation) on Fall Total Mathematics Score . . . . .	37

17	Estimates of the Contribution of Teacher Expectations, Self Expectations and Attitudes, and Selected Demographic Characteristics to Residual Achievement of Students Achieving at the Mean (plus or minus one-half standard deviation) on the Fall Total Reading Score . . . . .	38
18	Reading Correlations . . . . .	41
19	Mathematics Correlations . . . . .	42

## LIST OF FIGURES

Figure		Page
1	Model of the expectation process . . . . .	8
2	Description of variables . . . . .	13
3	Relationships between demographic variables (D), teacher expectations (TE), student expectations (SE), and student achievement (Ach) . . . . .	40

## Some Determinants and Consequences of Teacher Expectations Concerning Pupil Performance

In the near decade since the publication of Pygmalion in the Classroom, the research literature has been flooded with scores of studies attempting to replicate or to explain the seminal Rosenthal and Jacobson finding (1968). In several recent reviews of these studies (Finn, 1972; Dusek, 1975), the authors have reiterated the fairly consistent finding that experimentally produced teacher expectations, or "biases", do effect both the way in which the teacher interacts with the pupil and the pupil's ultimate performance. Furthermore, research shows that self-induced teacher expectations, or "expectancies", are correlated with both teacher behavior and pupil performance.

What is conspicuously absent in this literature, however, are studies addressed to two underlying problems: 1) what are the determinants of self-induced teacher expectations, and 2) what is the magnitude of the consequences of such expectations on pupil performance. It will be the purpose of this paper to investigate these issues using the framework of a longitudinal, non-experimental design, and a production function analysis.

### Review of the Literature

Research on teacher expectations typically has addressed one of the three following questions:

1. Do variations in teacher expectations provoke differences in pupil performance?
2. How are teacher expectations communicated to students?
3. Do various student characteristics, such as race, sex, or social class, provoke differences in teacher expectations?

Those familiar with the literature in this area will recognize how equivocal the answers to these three questions are.

The question that has provoked the most number of studies deals with whether teacher expectations produce greater academic or intellectual "growth" of the "high" expectancy students than for the "low" expectancy students. Two types of experimentally produced teacher expectations are used to investigate the question: 1) the experimenter provides the teacher with global evaluations of the high-expectancy students, such as identifying them as "potential intellectual bloomers", "bright", or having "high academic potential", and, 2) the experimenter provides the teacher with IQ scores falsely inflated or deflated for the experimental subjects. There are variable results associated with both of these experimental techniques. Thus, there are studies of student gain in achievement which both support (Beez, 1968; Michenbaum, Bowers and Ross, 1969; Rappaport and Rappaport, 1975) and fail to support (Carter, 1970; José and Cody, 1971; Kester and Letchworth, 1972; Maxwell, 1970; Pitt, 1956; and Dusek and O'Connell, 1973) the "expectancy effect" hypothesis. Similarly, there are studies of student gain in IQ score which both support (Carter, 1970; Knill, 1969; Maxwell, 1970; and Rosenthal and Jacobson, 1968) and fail to support (Clairborn, 1969; Fleming and Anttonen, 1971; Flowers, 1966; Goldsmith and Fry, 1971; and José and Cody, 1971) the hypothesis.

The second question, investigating how teacher expectations are communicated to students, has also generated numerous research studies. Most of these studies focus on differences in teacher behavior. Such studies are conducted both experimentally and non-experimentally. In

the experimental studies, teachers are again provided either with global evaluations of their students or with direct IQ or achievement scores; differences in teacher behavior directed toward "high" and "low" expectancy students are observed.

Although experimental studies by Clairborn (1969), José and Cody (1971), and Wilkins (1974) report no difference in teacher behavior directed to "high" and "low" expectancy students, other research aimed at answering this question finds significant differences between teacher behaviors directed toward "high" and "low" expectancy students (Beez, 1968; Michenbaum, Bowers and Ross, 1969; Kester and Letchworth, 1972; and Rothbart, Dalfen and Barrett, 1971). It is possible to attribute the failures of the Clairborn, José and Cody, and Wilkins studies to the researchers' inability to establish the necessary teacher expectations.

In non-experimental studies directed at answering this question, teacher expectations are first measured in naturalistic settings by asking the teachers to rank the students in their classes according to their expected academic achievement. Then student-teacher interaction is observed. Studies by Silberman (1969), Brophy and Good (1970), Mendóza (1971), Good and Brophy (1972), and Jetter and Davis (1973) report that teachers behave differently toward "high" expectancy students than to "low" expectancy students. This finding was not confirmed by Alpert (1974) who examined teacher behaviors directed toward students in "top" relative to "bottom" reading groups in 15 second grade classes. Using tape recordings of teacher-student interactions with reading groups, Alpert found no difference in the amount

4

of "good" teacher verbal behavior directed toward the lower reading groups, relative to better reading groups. Students in these groups, however, received more individual attention from the teacher because the groups contained significantly fewer students.

Teacher expectations for pupil performance may also be communicated to students by the formal structural arrangement of the classroom. Rist (1970), for example, documented how certain children were placed at the front of the classroom, evaluated publicly by the teacher, and treated in such a way as to publicly communicate the teacher expectations for these pupils to the remainder of the pupils in the class. Rist implies that the teachers held differential expectations for these pupils. Both Jackson (1968) and Adams and Biddle (1970) suggest that the structure of the classroom itself may communicate certain expectations to the pupils. Therefore, while dyadic interaction with pupils may vary for any number of reasons, global classroom instruction may still be effective in communicating differential performance expectations for different pupils. Some more familiar public ways of communicating such expectations include listing pupils in order of their previous achievement (with stars and so forth placed after their names), labeling the reading groups so that the more advanced groups have more favorable names, permitting high achieving students to correct low achieving students' mistakes, and giving independent work to the high achieving pupils while controlling closely the behavior of the low achieving pupils. All these techniques will be effective in communicating the expectations of the teacher for individual pupil performance.

The consistency of the naturalistic studies raises an important question: what are the student characteristics that determine teacher expectations? It may be the case that student behavior is a major determinant of teacher expectation formation. Since dyadic interaction is attributable to both members of the dyad, teachers may be responding to active student behavior, which also contributes to teacher expectation. The issue of determinants of teacher expectations will be treated in a later section of this paper.

In the studies of the determinants of teacher expectations, a wide range of indicators of teacher expectations have been used. A wide range of student characteristics which might influence teacher expectations have also been studied. These may be divided in three categories: 1) student achievement, 2) student status characteristics, and 3) student personality characteristics.

Regrettably, few studies have addressed the obvious issue that teacher expectations may be determined by the level of the students' achievement at the time the teacher expectations are established. Notable exceptions are found in studies by Dusek and O'Connell (1973) and Williams (1972). Both of these studies, and a follow-up on the Dusek and O'Connell study (O'Connell, Dusek and Wheeler, 1974), found high correlations between teacher expectations and student achievement. The order of the effect is suggested to be from student achievement to teacher expectation.

A number of studies have investigated student status characteristic determinants of teacher expectations. Student physical attractiveness, for example, has been shown to affect teacher ratings of expected



academic achievement, IQ (Clifford and Walster, 1973) and work habits (Adams and La Voie, 1974), but such effects have not been consistent. While attractive students were rated more positively by teachers in the Clifford and Walster study, moderately attractive students were rated by teachers as having better work habits than either attractive or unattractive students in the Adams and La Voie study, and in the same study, unattractive students were rated as having better work habits than attractive students.

Student race (black vs. white) has also been examined as a determinant of teacher expectations, notably to discover whether teachers hold "racist" attitudes against blacks. While one study of race effects on teacher expectations has been reported (Pugh, 1974), the bulk of studies report no race effect on teacher ratings of potential for reading (Long and Henderson, 1974), future grades (Cooper, Baron and Lowe, 1975), an essay written by a (hypothetical) child (Finn, 1972) or future performance (Simpson, Smith and Means, 1974). Studies investigating other racial or ethnic groups have not been reported.

Related to studies of race are studies of social class. In two experimental studies, conflicting results were obtained. Long and Henderson (1974) report no social class effects on teacher ratings of how easily a child will learn to read, while Cooper, Baron and Lowe (1975) report social class effects on teacher estimations regarding a child's future grade.

The extent to which a child's sex determines teacher expectations has been studied extensively. In general, it is found that teachers hold higher expectations for girls than for boys in terms

7

of student work habits and attitudes towards school (Adams and La Voie, 1974), and motivation and reading readiness (Davis and Slobodian, 1967); while the performance of boys is evaluated more highly than that of girls (Finn, 1972; Abramowitz, Abramowitz, Jackson and Gomes, 1973; Deaux and Taynor, 1972; Taynor and Deaux, 1973; Goldberg, 1971; Levitin and Chananie, 1972; and Mischel, 1974).

Student personality characteristics which affect teacher expectations have been examined in a number of recent studies. Among the student descriptors found to produce differences in teacher expectations are attentiveness (Long and Henderson, 1974; Willis, 1973), activity (Long and Henderson, 1974), good conduct (Adams and La Voie, 1974) and globally positive psychological reports (Mason, 1973; Mason and Larimore, 1974).

### Theory

A partial model of the expectation process, derivable from the previous research, has been proposed by Entwisle and Webster (1974). Entwisle and Webster reason that the teacher serves as a source of a student's self-evaluation. By modifying a student's self-evaluation, a teacher is able to change the student's motivation and behavior and hence improve his or her performance. The strength of modifying children's (rather than teacher's) expectations has been examined in small samples of disadvantaged children (Entwisle and Webster, 1974; Rappaport and Rappaport, 1975). In both these studies, student behavior was modified by direct manipulation of the student's self-expectations by an outside experimenter. In the Rappaport

and Rappaport study, this behavior change involved change in student performance on a standardized test of achievement.

The model of the expectation process is as follows:

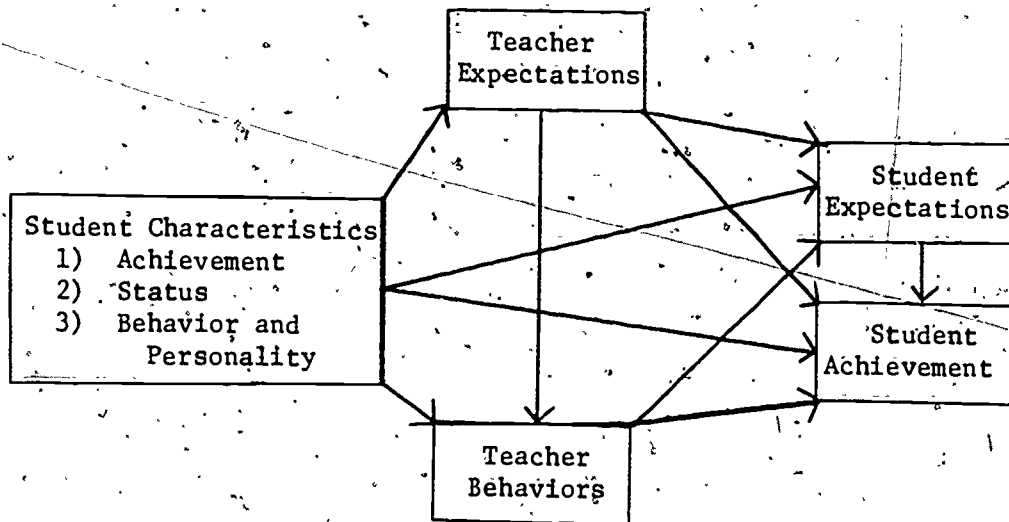


Figure 1. Model of the expectation process.

Past research evidence shows that certain student characteristics determine teacher expectations and teacher behaviors, that teacher expectations determine student academic achievement and teacher behaviors, that student characteristics are correlated with academic achievement, and that teacher behaviors affect student academic achievement.

Studies of the determinants of self-evaluations show that status characteristics (Berger, Cohen and Zelditch, 1972) and the evaluations of others (Entwistle and Webster, 1974), as well as achievement, all affect self-evaluations. Self-evaluations have been shown to affect achievement (Rappaport and Rappaport, 1975). While these linkages underlie the conceptualization of much of the reported studies on

teacher expectations effects, these studies typically explore only one or two of the linkages at the same time.

Experimental studies which manipulate teacher expectations may or may not be effective in setting the expectations for specific student growth. Field studies fail to take into account student characteristics which may have contributed to the teacher's expectations and hence may overlook the importance of the student's own self-perceptions and expectations. In general the linkage between teacher behaviors and student academic achievement is weak (Rosenshine, 1971; Potter, 1974). Few studies specify the process and none the conditions under which the expectation phenomenon may operate.

While the present study will not be able to examine the teacher behavior part of the preceding model (because the available teachers behavior data has been aggregated by classroom rather than by target pupil), the remainder of the model will be thoroughly examined.

## Procedures

### Subjects

The subjects of this study were the students of the 41 second grade and 54 fifth grade teachers who volunteered to participate in a larger study of teacher behavior and student achievement. Volunteers were selected from eight school districts in California; the school districts were representative of the state as a whole and included urban, suburban and rural populations. The teachers had from 3 to 31

years of full-time teaching experience, with an average of 13.4 years. None was new to either the teaching profession or to their schools.

Students enrolled in self-contained classrooms and who were present for both a fall and spring testing session were identified as subjects for this study. Approximately 550 second grade students and 700 fifth grade students were so identified, although complete data were available on fewer than this number of students (in the fifth grade, 565 for reading and 598 for mathematics; in the second grade 474 for reading and 482 for mathematics).

#### Data Collection

Data were collected on both the teachers and the students in the fall of the school year and again in the spring. Substitute teachers were hired to administer the tests to the students while the teachers completed their own test battery. School had been underway for two months before the fall testing was completed.

#### Measures

##### Teacher Expectation

The measure of the expectation a teacher held for a given student's performance in either reading or mathematics was the rank given to the pupil in response to the instruction to "Rank order the children in your class according to how well you think the child will do in reading (or mathematics) this year." Ranks were adjusted for class size by converting them into deciles.

### Student Status Characteristics

In a separate instrument, teachers were requested to provide information regarding each of the students in his or her class. The teacher identified the child's sex, racial identity (black, white, Mexican, Chinese, Japanese, Filipino, American Indian, or other), an estimate of the student's socioeconomic background (upper, upper-middle, middle, lower-middle, lower), physical handicaps, whether the child had been enrolled in any of a variety of special education programs (Title I, bilingual, remedial reading, Miller-Unruh reading, Headstart, Followthrough), and the extent to which the child understood and spoke English. These pieces of information were considered to be representative of information typically available to a teacher and likely to serve as sources of bias in a teacher's estimate of a student's potential academic achievement.

### Student Achievement

The total reading score used in this study is a composite of the Reading Comprehension subtest of the California Achievement Tests and three reading tests designed for this study (Reading Application, Decoding, and Reading Achievement).

The total mathematics score used in this study is a composite of the Mathematics Computation and Concepts subtests of the California Achievement Tests and a mathematics application test designed for this study.

Because alternate forms of the tests were used for the fall and spring testing, it was necessary to equate the forms. The equating took into account the relative difficulty of items omitted and administered in the computation of a raw score. This adjusted raw

score was then expressed as a percentage of the items correct. A complete description of the tests and equating methodologies appears in Volume IV of this report.

Limitations of the data. The major limitation of this data is in the teacher expectation measure. Ideally, this information should have been collected in the first days of school. Due to circumstances beyond the control of the study team, this information was not collected until at least the second month of school. The high degree of correlation between teacher expectations and actual student performance is evidence that sufficient information about student performance had been communicated to the teachers for them to make a relatively accurate judgement.

#### Analytic Method and Results

A description of the variables appears in Figure 2; means and standard deviations for the variables appears in Table 1. The correlation matrix appears in Appendix A. Each analysis has been conducted separately for grades two and five and for reading and mathematics.

#### Determinants of Teacher Expectations

Previous research suggests that, other things being equal, teachers may hold different expectations for their pupils based on race, sex, social class and other indicators of educational difficulty, such as enrollment in special programs, unfamiliarity with English, or a physical handicap. We estimate that the effects of characteristics combine in a linear manner, based on their common negative evaluation



Dummy variables (0 or 1)

Sex

1 = female

Race or ethnic category

1 = member of specific racial or ethnic group

(black, Chinese, Filipino

Japanese, Mexican, American

Indian, white or other race)

Physical handicap

1 = has physical handicap

Special program

1 = enrolled in or has been enrolled in specific special program

(Title I, bilingual, remedial

reading, Miller-Unruh reading,

Follow Through or other special program)

Categorical scaled variables

SES

5 = upper class

4 = upper middle class

3 = middle class

2 = lower middle class

1 = lower class

Bilingual ability

5 = English speaking

4 = operational speaking and comprehension

3 = limited speaking and comprehension

2 = nearly no English speaking and comprehension

1 = no English speaking or comprehension

Percentile or decile scaled variables

Teacher expectations

Deciles. 10 = ranks in top 10% of class, 1 = ranks in bottom 10% of class.

Peer expectations

Percentiles. Percent of classmates identifying student as "best in reading" or "best in math". (100% is high).

Student self expectations

Percentiles. Percent items "passed" on expectation measure. (100% is high).

Student attitudes

Percentiles. Percent items "passed" on attitude measure. (100% is high).

Test scores

Percentiles. Percent items "passed". (100% is high).

Total test scores

Percentiles. Sum of test scores. (300% is high).

Figure 2. Description of variables.



Table 1

Means and Standard Deviations of Variables  
in Reading and in Mathematics

Variable	Grade 2 (N=474)		Grade 5 (N=565)	
	Mean	S.D.	Mean	S.D.
SEX	0.5316	0.4990	0.5274	0.4992
BLACK	0.0886	0.2842	0.1186	0.3233
CHINESE	0.0316	0.1751	0.0953	0.0727
FILIPINO	0.0127	0.1118	0.0106	0.1025
JAPANESE	0.0464	0.2104	0.0484	0.2345
MEXICAN	0.1266	0.3325	0.1186	0.3233
AMERICAN	0.0	0.0	0.0	0.0
WHITE	0.6519	0.4764	0.6494	0.4771
OTHER-RACE	0.0422	0.2010	0.0389	0.1936
PHY-DCAP	0.0759	0.2649	0.0673	0.2505
LITL-1	0.0042	0.0648	0.0230	0.1499
BIL-PRGM	0.0105	0.1022	0.0106	0.1025
REMED-RD	0.0422	0.2010	0.0212	0.1442
MIL-U-RD	0.0591	0.2358	0.0584	0.2345
FOL-THRU	0.0021	0.0459	0.0	0.0
HEADSTRT	0.0084	0.0915	0.0071	0.0836
OTHER-SP	0.2658	0.4418	0.1469	0.3540
SES	3.0211	0.9388	2.8513	0.9018
BIL-ACES	4.9219	0.3051	4.9858	0.1323
T-EXP.-F	5.6245	2.8251	5.7980	2.7820
T-EXP.-S	5.6540	2.8879	5.6549	2.8314
P-EXP.-F	4.0516	5.3043	3.2945	5.0346
P-EXP.-S	4.3014	6.2779	3.3125	5.4405
S-EXP.-F	76.0056	16.9216	69.9660	15.7773
S-EXP.-S	80.1547	14.8212	67.9148	17.5019
ATT.-B-F	63.6896	26.0477	57.5902	22.3956
ATT.-R-S	60.8167	25.3243	54.9081	24.0595
CAT-RC-F	43.9397	15.5778	57.8587	14.2934
CAT-RC-S	49.1638	18.5441	59.6510	18.2249
RAPPLC-F	64.9320	21.3918	73.4892	17.8741
RAPPLC-S	65.5539	23.2424	63.4051	21.2462
DECCGT-F	71.4503	15.2511	82.4740	13.3987
DECCGT-S	79.7374	13.5705	85.6256	12.5500
RACHMT-F	53.2514	22.6918	53.9719	21.5054
RACHMT-S	64.6586	23.4597	56.5155	22.6021
ICITRD-F	161.5231	53.5869	185.3198	46.4223
ICITRD-S	179.3762	58.7020	179.5716	54.6754
IUT-RES	-0.0041	33.5525	-0.0028	32.1475
I-EX-RES	0.0001	1.5566	-0.0002	1.7359
S-EX-RES	0.0011	13.1014	0.0028	15.3307

Table.1 (continued)

Means and Standard Deviations of Variables  
in Reading and in Mathematics

Mathematics:				
Variables	Grade 2 (N=482)		Grade 5 (N=598)	
	Mean	S.D.	Mean	S.D.
SFX	0.5228	0.4995	0.5334	0.4989
BLACK	0.0892	0.2850	0.1538	0.3608
CHINESE	0.0311	0.1736	0.0050	0.0707
FILIPINO	0.0124	0.1109	0.0160	0.0997
JAPANESE	0.0698	0.2175	0.0552	0.2283
MEXICAN	0.1203	0.3253	0.1120	0.3154
AMERICAN	0.0	0.0	0.0	0.0
WHITE	0.6519	0.4765	0.6271	0.4836
OTHER-RA	0.0456	0.2087	0.0368	0.1882
PHY-ECAP	0.0768	0.2662	0.0652	0.2469
TITLE-I	0.0041	0.0643	0.0017	0.1458
BIL-PRGM	0.0124	0.1109	0.0160	0.0997
RENEG-RO	0.0419	0.1994	0.0201	0.1402
MIL-RO	0.0519	0.2218	0.0552	0.2283
FOLTHRU	0.0021	0.0455	0.0	0.0
HEADSRT	0.0062	0.0786	0.0067	0.0915
OTHER-SP	0.2718	0.4449	0.1472	0.3543
SES	3.0270	0.9386	2.8662	0.8840
BIL-CES	4.9712	0.2056	4.9866	0.1286
T.EXP.-F	5.5581	2.7985	5.7140	2.8414
T.EXP.-S	5.5290	2.8336	5.6990	2.8776
P.EXP.-F	3.3330	4.7448	3.3424	4.2888
P.EXP.-S	3.9100	5.9171	3.3928	5.7522
S.EXP.-F	14.0098	18.6217	62.3231	20.3830
S.EXP.-S	83.5157	14.2554	64.5742	20.9812
ATI.-W-F	63.8312	24.5945	55.8400	24.8580
ATI.-M-S	62.6325	24.3004	53.2105	27.9535
CAIYON-F	49.2607	11.7163	56.7499	12.9520
CAIYON-S	55.9932	12.5694	58.2068	14.6630
CAIYON-F	37.8828	12.4031	44.6311	12.0578
CAIYON-S	45.9968	15.8662	47.4814	13.9144
MTRAPL-I	65.7561	19.0560	58.0435	19.4171
MTRAPL-S	75.8183	14.4837	55.6271	21.2659
MTRAPL-F	152.8997	33.1522	159.4244	38.6951
MTRAPL-S	177.7084	35.6900	161.1153	44.3075
101-RES	-0.0072	23.2310	0.0060	23.2808
T.EX-RES	0.0000	1.8799	0.0000	1.8673
S.EX-RES	-0.0015	13.4995	0.0002	19.1817

(Berger and Fisek, 1970; Burger, Fisek and Crosbie, 1970; Berger, Connor, and Fisek, 1974) and that this relationship may be expressed as a simple linear equation of the form:

$$Y_1 = b_0 + \sum_{i=1}^n b_i X_i + u.$$

where  $Y_1$  is the teacher expectation, the  $X_i$  values are the characteristics thought to determine expectation, and  $u$  is the error term.

In addition, there is evidence (Dusek and O'Connell, 1973) that teachers form expectations based on the achievement of the student. A variable for student achievement, therefore, has been included in the equation.

We also presume that the student's own perception of his or her abilities may affect the teacher's initial expectations, as well as the student's subsequent performance (Rappaport and Rappaport, 1975).

Tables 2-5 present the results obtained from an ordinary least-squares multiple regression analysis; in each case the unit of analysis is the child and the dependent variable is the teacher's expectation for that child's subsequent achievement. Equation 1 presents the effects of certain demographic variables only, without the inclusion of the student's expectations, attitudes or achievement; Equation 2 includes these latter variables.

Table 2  
Some Determinants of Teacher Expectations  
Grade 2 - Reading. Partial standardized regression  
coefficients (t-statistic in parentheses)

Independent Variables	Equation 1		Equation 2	
Sex(female)	.0131	(2.3588)	.0686	(1.8172)
Black	-.0154	(.3363)	-.0158	(.4056)
Chinese	.0514	(1.1710)	.0464	(1.2402)
Japanese	.0766	(1.7265)	.0623	(1.6495)
Filipino	.1372	(3.1092)	.1298	(3.4461)
Mexican	.0115	(.2084)	.0310	(.6584)
Other race	.0011	(.0244)	-.0114	(.2987)
Physical handicap	-.0944	(2.1176)	-.0746	(1.9601)
Title I	-.0337	(.7695)	-.0298	(.8033)
Bilingual program	.0219	(.4974)	.0133	(.3573)
Remedial reading	-.1915	(4.1232)	-.1109	(2.7817)
Miller-Unruh	.0274	(.5988)	.0771	(1.9411)
Follow Through	.0091	(.1984)	-.0172	(.4410)
Headstart	-.0038	(.0845)	-.0055	(.1458)
Other special program	-.0209	(.4636)	-.1035	(2.6764)
SES	.1509	(2.9022)	-.0482	(1.0358)
Bilingual ability	.0961	(1.8764)	.0609	(1.4000)
Student expectation			.0972	(2.3280)
Attitude toward reading			.0051	(.1340)
Total reading score			.5296	(11.7098)
Constant	.3303	(.1404)	-2.5140	(1.2368)
df	456/18		453/21	
r <sup>2</sup>	.1516		.3940	

Table 3  
Some Determinants of Teacher Expectations  
Grade 2 - Math. Partial standardized regression  
coefficients (t-statistic in parentheses)

<u>Independent Variables</u>	<u>Equation 1</u>		<u>Equation 2</u>	
Sex (female)	-.0689	(1.5695)	-.0336	(.8521)
Black	-.0069	(.1504)	.0137	(.3334)
Chinese	.0535	(1.2166)	.0466	(1.1881)
Filipino	.1378	(3.0971)	.1279	(3.2215)
Japanese	.0979	(2.2163)	.1005	(2.5290)
Mexican	.0224	(.4049)	.0681	(1.3712)
Other race	.0971	(2.1644)	.0943	(2.3428)
Physically handicapped	-.0906	(2.0350)	-.0573	(1.4386)
Title I	-.0333	(.7579)	-.0193	(.4932)
Bilingual program	.0403	(.9077)	.0377	(.9498)
Remedial reading	-.1532	(3.2976)	-.1083	(2.5995)
Miller-Unruh	-.0120	(.2633)	.0540	(1.3124)
Follow Through	.0063	(.1367)	-.0095	(.2301)
Headstart	-.0367	(.8290)	-.0339	(.8569)
Other special program	-.0261	(.5785)	-.0627	(1.5531)
SES	.1564	(3.0311)	.0105	(.2178)
Bilingual ability	.1122	(2.1638)	.0990	(2.1415)
Student expectation			.0355	(.8009)
Attitude toward mathematics			.0573	(1.4353)
Total mathematics score			.4643	(9.7065)
Constant	-.7009	(.2968)	-5.7922	(2.6662)
df	464/18		461/21	
r <sup>2</sup>	.1319		.3157	

Table 4  
Some Determinants of Teacher Expectations  
Grade 5 - Reading. Partial standardized regression  
coefficient (t-statistic in parentheses)

Independent Variables	Equation 1		Equation 2	
Sex (female)	.1178	(2.9428)	.0558	(1.7988)
Black	-.0320	(.7674)	-.0611	(1.8151)
Chinese	.0303	(.7679)	.0137	(.4528)
Filipino	.0798	(1.9911)	.0391	(1.2640)
Japanese	.0980	(2.4365)	.0297	(.9487)
Mexican	.0154	(.3417)	.0456	(1.3162)
Other race	-.0220	(.5353)	-.0094	(.2984)
Physical handicap	-.0261	(.6522)	-.0162	(.5244)
Title I	-.0399	(.9815)	-.0201	(.6372)
Bilingual program	-.1164	(2.8806)	-.0588	(1.8870)
Remedial reading	-.2181	(5.4612)	-.1114	(3.5772)
Miller-Unruh reading	-.1204	(2.9499)	-.0324	(1.0139)
Headstart	.0247	(.6000)	-.0154	(.4867)
Other special program	-.0715	(1.7073)	-.0635	(1.9697)
SES	.1825	(3.9723)	.0234	(.6393)
Bilingual ability	.0671	(1.6394)	-.0095	(.2993)
Student expectation			.1648	(4.5653)
Student attitude/Reading			.0624	(1.6859)
Total reading score			.5725	(15.2468)
Constant	-3.0271	(.7008)	-2.4656	(.7429)
d/df	548/17		545/20	
r <sup>2</sup>	.1556		.5058	

Table 5  
Some Determinants of Teacher Expectations  
Grade 5 - Math. Partial standardized, regression  
coefficients (t-statistic in parentheses)

Independent Variables	Equation 1		Equation 2	
Sex (female)	.0396	(1.0058)	.0385	(1.2517)
Black	-.0681	(1.6599)	.0582	(1.7336)
Chinese	.0748	(1.9243)	.0399	(1.3177)
Filipino	.0928	(2.3504)	.0596	(1.9367)
Japanese	.0874	(2.2066)	.0080	(.2531)
Mexican	.0448	(1.0094)	.0261	(.7549)
Other race	.0536	(1.3248)	.0486	(1.5417)
Physical handicap	-.0874	(2.2180)	-.0234	(.7589)
Title I	-.0488	(1.2180)	-.0240	(.7659)
Bilingual program	-.0692	(1.7405)	-.0589	(1.9030)
Remedial reading	-.2032	(5.1692)	-.1149	(3.7160)
Miller-Unruh reading	-.1102	(2.7360)	-.0102	(.3170)
Headstart	.0315	(.7791)	-.0133	(.4215)
Other special Program	-.0475	(1.1553)	-.0865	(2.6934)
SES	.1757	(3.9134)	-.0122	(.3371)
Bilingual ability	.1013	(2.5130)	.0140	(.4400)
Student expectation			.1091	(2.9848)
Student attitude/Math			.1278	(3.5364)
Total math score			.5713	(15.1649)
Constant	-6.9644	(1.5586)	-4.2396	(1.2149)
df	581/17		578/20	
r <sup>2</sup>	.1380		.5227	

It is evident that demographic variables alone account for little variance in teacher expectations; the variance explained in all four "equation 1" regressions lies between 13 and 16% of the total variance. It is worth noting, however, that some variables are significantly related to teacher expectations before the effects of achievement are partialled out from the equation.

Sex (being female) is positively related to teacher expectations for reading at both second and fifth grades, and negatively related to teacher expectations for mathematics at second grade.

Being black is negatively related to teacher expectations for mathematics at the fifth grade.

Being Chinese, Filipino, or Japanese (i.e., Oriental) is generally positively related to teacher expectations.

Being Mexican has no bearing on teacher expectations.

Having a physical handicap is negatively related to teacher expectations.

In general, having participated in any compensatory education program except bilingual or "other special program" is negatively related to teacher expectations.

The higher the social class, the higher the teacher expectations.

Teachers hold higher expectations for bilingual students.

When the effects of student expectations, attitudes and achievement are considered simultaneously with demographic or status variables, the picture changes. First of all, student achievement is the strongest single predictor of teacher expectations. The partial correlations of student achievement with teacher expectations range from .4643 to .5725 and therefore account for more of the variance in teacher expectations than the combined demographic or status variables.



At the second grade level, the introduction of the student achievement measures both reduces the size of the sex effect and eliminates the significance of the SES effects compared to equation 1.

At the fifth grade level, the introduction of the student achievement measures decreases the effects of all demographic variables with the expectation of "black" and "other special program" variables. This holds for both mathematics and reading. The effects of SES are completely washed out by these variables.

Consistent with Rappaport and Rappaport (1975), students' own expectations are correlated with teacher expectations, although the causal direction of this effect has been suggested to be from teacher to student (Entwistle and Webster, 1974), rather than the reverse.

Grade level differences occur with regard to the effects of "black" race on teacher expectations. While being black does not have an effect on teacher expectations at grade 2, at grade 5 being black is associated with higher teacher expectations after the effects of initial achievement and other student demographic and attitudinal measures have been partialled out.

Percentages and means and standard deviations for the variables broken down by teacher expectation level are presented in Tables 6-9.

Since in many cases the numbers of students in the categories are small, some caution must be used in interpreting some of the findings.

Table 6  
Grade 2 - Reading Variables by Expectation Level

Variables	Expectation Level									
	1 (low)	2	3	4	5	6	7	8	9	10 (high)
Percent										
Female	41%	47%	51%	45%	51%	48%	59%	58%	60%	64%
Black	3	8	9	15	15	11	10	7	6	6
Chinese	0	0	2	4	4	2	6	5	4	4
Filipino	3	2	0	0	0	2	0	2	6	0
Japanese	3	0	0	2	4	4	4	14	6	9
Mexican	26	19	13	22	11	9	4	14	4	9
American Indian	0	0	0	0	0	0	0	0	0	0
White	62	68	72	51	65	67	71	51	70	73
Other Race	6	4	4	1	2	4	6	7	2	2
Physical Handicap	15	11	11	13	7	2	8	0	2	8
Title I	0	0	2	0	2	0	0	0	0	0
Bilingual Program	0	4	0	2	0	0	2	0	0	2
Remedial Reading	18	9	15	4	0	0	0	0	0	0
Miller-Unruh Reading	6	8	4	9	7	11	4	10	0	2
Follow Through	0	0	2	0	0	0	0	0	0	0
Headstart	3	2	0	0	0	0	0	5	0	0
Other Special Prog.	29	26	38	29	22	28	33	14	17	28
Means & (S.D.)										
SES	2.53(1.17)	2.81(1.01)	2.77(.97)	2.84(.94)	3.07(1.02)	3.15(.83)	3.29(.67)	2.98(.88)	3.30(.74)	3.28(.81)
Bilingual Ability	4.76(.49)	4.87(.39)	4.87(.39)	4.95(.21)	4.93(.26)	4.96(.20)	4.98(.14)	4.88(.44)	4.98(.14)	4.89(.14)
CAT Read. Comp.	29.60(14.76)	32.94(11.56)	36.17(13.93)	37.07(15.13)	40.48(13.88)	42.14(12.65)	48.53(13.10)	50.39(12.50)	54.61(8.00)	57.54(11.59)
Read. Application	45.42(22.77)	50.94(19.69)	59.22(19.83)	60.49(19.18)	62.42(19.85)	67.03(18.84)	70.37(16.75)	70.41(22.82)	77.52(12.71)	80.54(15.50)
Decoding	53.10(13.61)	61.80(11.84)	62.55(14.93)	66.84(13.97)	68.53(12.19)	70.43(12.05)	77.30(9.66)	77.35(11.45)	83.42(8.11)	87.57(8.24)
Read. Achievement	39.62(17.14)	38.96(17.22)	45.43(21.53)	44.84(21.77)	46.74(19.89)	52.17(19.01)	61.71(17.95)	55.40(24.93)	68.96(14.24)	74.55(16.73)
Total Reading	114.65(45.99)	122.84(40.50)	140.82(47.78)	142.40(46.59)	149.64(46.97)	161.35(45.70)	180.60(43.44)	176.20(55.26)	201.11(29.64)	211.58(38.45)
Total Residual	-28.36(39.48)	-8.39(35.72)	-15.83(41.95)	-1.53(32.85)	4.41(29.73)	31(33.93)	3.78(24.59)	14.82(28.99)	9.66(23.19)	12.82(19.75)
N=	34	53	47	45	55	46	51	43	47	53

Table 7  
Grade 2 - Mathematics Variables by Expectation Level

Variables	1 (low)	2	3	4	5	6	7	8	9	10 (high)
Percent										
Female	58%	55%	50%	54%	51%	56%	54%	57%	45%	43%
Black	5	6	12	9	12	17	9	7	10	0
Chinese	0	2	2	2	4	4	4	0	6	6
Filipino	0	0	0	0	0	0	2	5	4	2
Japanese	5	0	4	0	4	4	9	9	6	9
Mexican	18	29	10	15	10	6	9	11	6	6
American Indian	0	0	0	0	0	0	0	0	0	0
White	66	63	68	68	65	65	64	66	61	66
Other Race	5	0	4	6	4	4	4	2	6	11
Physical Handicap	16	12	10	9	6	4	7	5	2	6
Title I	0	0	2	0	2	0	0	0	0	0
Bilingual Program	3	0	2	2	0	2	0	0	2	2
Remedial Reading	8	12	12	8	0	0	2	0	0	0
Miller-Untch Reading	3	4	8	6	6	10	7	5	2	0
Follow Through	0	0	2	0	0	0	0	0	0	0
Headstart	0	2	2	0	0	0	2	0	0	0
Other Special Prog.	26	33	32	38	24	19	22	27	19	32
Means & (S.D.)										
SES	2.79(1.13)	2.75(1.00)	2.86(.98)	2.89(.92)	3.02(.84)	3.13(.99)	2.95(.86)	3.18(.83)	3.31(.79)	3.40(.72)
Bilingual Ability	4.84(.49)	4.80(.45)	4.92(.07)	4.91(.29)	4.96(.20)	4.94(.24)	4.93(.13)	4.95(.21)	4.91(.40)	4.95(.14)
CAT Math. Concepts	9.50(10.63)	42.55(8.52)	44.59(12.47)	46.09(11.70)	48.11(10.68)	49.29(11.16)	52.08(9.06)	54.59(8.48)	55.10(9.97)	59.49(8.14)
CAT Math. Comput.	9.27(11.08)	34.28(10.23)	33.70(11.57)	34.31(11.01)	36.71(11.04)	35.38(11.35)	40.47(11.37)	42.51(12.72)	43.87(10.65)	47.25(11.95)
Math. Application	8.19(12.66)	60.43(15.08)	59.33(16.57)	60.80(14.81)	62.24(14.59)	67.48(13.32)	68.09(11.47)	72.73(14.74)	71.32(11.79)	75.71(12.63)
Math. Total	6.96(29.97)	137.26(25.96)	137.62(35.47)	141.20(30.25)	147.07(28.81)	152.14(29.21)	160.63(23.60)	169.63(31.05)	170.25(26.04)	183.6(25.54)
Total Residual	11.34(22.66)	-6.83(20.20)	-2.61(20.25)	1.96(20.60)	.06(22.41)	-.86(16.66)	4.54(19.79)	1.50(21.75)	4.91(22.41)	5.75(19.63)
N=	38	49	50	53	49	48	55	44	49	47

Table 8

Grade 5 - Reading Variables by Expectation Level.

Variables	1 (Low)	2	3	4	5	6	7	8	9	10 (High)
Percent										
Female	26%	57%	48%	42%	48%	70%	53%	58%	59%	57%
Black	9	17	13	9	14	16	10	16	5	9
Chinese	0	0	0	0	0	3	0	0	2	0
Filipino	2	0	0	0	0	2	2	0	2	4
Japanese	2	0	0	0	0	2	0	0	2	0
Mexican	17	11	20	16	9	8	10	10	17	7
American Indian	0	0	0	0	0	0	0	0	0	0
White	61	66	63	67	73	56	62	64	65	76
Other Race	9	6	5	2	0	7	5	0	3	4
Physical Handicap	9	2	7	18	4	7	7	4	5	6
Title I	1	0	4	5	2	0	2	1	3	0
Bilingual Program	1	4	2	4	0	0	0	0	0	0
Remedial Reading	17	6	5	0	2	0	0	0	0	0
Miller-Unruh Reading	2	0	9	12	5	11	3	0	2	0
Follow Through	0	0	0	0	0	0	0	0	0	0
Headstart	0	2	0	2	2	0	2	0	0	0
Other Special Prog.	26	15	16	14	16	13	17	6	10	19
Means & (S.D.)										
SES	2.50(1.06)	2.83(.95)	2.64(.90)	2.74(.93)	2.80(.91)	2.90(.76)	2.82(.87)	2.91(.86)	3.08(.85)	3.20(.75)
Bilingual Ability	5.00(0)	4.91(.35)	5.00(0)	4.98(.13)	4.96(.19)	5.00(0)	4.98(.13)	5.00(0)	5.00(0)	5.00(0)
CAI Read. Comp.	42.5(11.41)	45.95(8.95)	49.91(9.67)	52.67(7.56)	55.24(12.03)	58.65(11.58)	62.39(11.75)	63.05(10.48)	67.56(11.45)	71.25(12.12)
Read. Application	57.6(19.73)	63.98(17.49)	64.80(18.89)	67.42(15.94)	71.56(16.72)	71.66(16.00)	78.93(14.07)	83.75(11.22)	80.87(11.61)	87.57(8.45)
Decoding	64.79(16.04)	70.56(12.78)	76.52(12.05)	79.05(9.30)	80.02(13.00)	84.91(10.47)	88.11(8.73)	89.64(7.58)	90.47(6.74)	93.36(3.97)
Read. Achievement	32.61(15.11)	38.92(17.61)	41.18(13.75)	45.72(14.91)	53.15(19.25)	54.00(21.69)	58.04(18.55)	63.68(15.99)	69.19(19.29)	74.51(16.45)
Total Reading	132.72(35.49)	148.86(32.97)	155.88(33.48)	165.81(29.50)	179.95(41.64)	184.32(39.26)	199.36(37.26)	210.48(31.88)	217.92(35.95)	236.32(31.95)
Total Residual	-5.16(39.27)	-15.75(31.75)	-6.60(33.82)	-7.32(33.08)	-3.76(34.29)	5.37(30.95)	2.61(27.69)	5.64(26.39)	10.89(31.03)	8.62(26.19)
N	46	47	56	57	56	61	60	69	59	54

Table 9

## Grade 5 - Mathematics Variables by Expectation Level

Variables	1 (low)	2	3	4	5	6	7	8	9	10 (high)
Percent										
Female	29%	56%	54%	51%	58%	66%	57%	63%	56%	62%
Black	17	19	16	23	17	15	12	7	13	13
Chinese	0	0	0	0	0	0	0	1	3	0
Filipino	0	0	2	0	0	0	2	1	5	0
Japanese	2	0	0	5	10	5	8	7	10	6
Mexican	21	7	14	9	12	12	6	15	10	6
American Indian	0	0	0	0	0	0	0	0	0	0
White	54	74	64	61	58	61	66	66	51	70
Other Race	6	0	4	2	3	7	6	1	3	5
Physical Handicap	15	6	9	9	3	7	6	3	2	8
Title I	8	2	2	0	5	2	0	1	2	2
Bilingual Program	4	2	0	2	0	0	0	0	3	0
Remedial Reading	12	4	4	2	2	3	8	0	0	0
Miller-Unruh Reading	10	9	11	4	10	0	0	0	0	0
Follow Through	0	0	0	0	0	0	0	0	0	0
Headstart	2	0	0	2	0	2	2	0	0	0
Other Special Prog.	19	15	18	14	17	8	17	14	11	12
Means & (S.D.)										
SES	2.52(1.03)	2.87(.86)	2.68(.97)	2.77(.84)	2.85(.82)	2.90(.86)	2.83(.87)	2.96(.83)	2.95(.80)	3.23(.82)
Bilingual Ability	4.92(.33)	5.00(0)	4.98(.13)	5.00(0)	4.98(.13)	4.98(.13)	4.98(.12)	5.00(0)	5.00(0)	5.00(0)
CAT Math. Concepts	41.63(9.70)	46.59(8.71)	50.55(9.60)	54.77(11.16)	57.15(11.14)	56.90(7.78)	59.94(12.63)	63.10(11.11)	64.70(10.73)	66.52(11.73)
CAT Math. Comput.	30.81(10.73)	35.01(8.33)	36.57(9.94)	42.65(10.59)	45.30(9.68)	45.39(8.34)	47.23(8.89)	49.71(9.35)	52.54(10.19)	55.67(9.07)
Math. Application	41.92(19.62)	43.98(13.92)	43.21(17.74)	52.37(20.69)	57.37(17.95)	60.00(16.39)	62.77(16.00)	66.62(15.46)	68.28(16.59)	71.41(15.52)
Math. Total	114.36(32.86)	125.59(26.37)	135.34(29.57)	149.78(37.34)	159.82(32.08)	162.29(25.21)	169.94(29.89)	179.43(27.20)	185.52(29.73)	193.50(28.87)
Total Residual	-7.08(27.06)	-3.91(28.68)	-1.53(22.32)	-3.36(21.46)	-3.66(20.03)	-3.80(23.84)	1.82(24.05)	4.07(18.15)	8.06(18.70)	6.27(23.14)
N=	52	54	56	57	59	59	65	71	61	64

### Teacher Expectation Effects on Student Learning

The question that has provoked the most interest in the area of teacher expectation research is that of whether teacher expectations produce differences in student learning. Expressed as a linear model, the equation is:

$$Y_1 = b_0 + b_1X_1 + b_2X_2 + \sum_{i=3}^n b_iX_i + u$$

Where  $Y_1$  is student achievement at time 2,  $X_1$  is teacher expectation,  $X_2$  is student achievement at time 1,  $X_i$  are demographic and other student variables, and  $u$  is the error term.

In order to determine whether teacher expectations were related to student achievement, regressions were run with spring achievement as the dependent variable and teacher expectations, student fall achievement, and demographic characteristics as predictor variables.

Equation 3 of Tables 10-13 reports the correlations of fall teacher expectations with spring achievement. These correlations are high (significant at  $p < .001$ ) for both grades in reading and mathematics. When the effects of fall student achievement are partialled out (equation 2), the level of the effect is less, but remains significant.

The addition of the demographic variables (equation 1) adds less than 4% to the variance in spring achievement accounted for by equation 2 alone. It is important to hold in mind that equation 2 represents the independent contribution of fall achievement and teacher expectation, and does not include their combined effects.

Table 10.

Regression Results for Grade 2 Reading: Partial correlation coefficients for teacher expectation, fall achievement, and selected demographic characteristics with spring achievement.

Variables	Equation 1		Equation 2		Equation 3	
	Beta	t	Beta	t	Beta	t
T.EXP.-F	0.2660	8.8360	.2633	8.9875	.6387	18.0360
TOTRED-F	0.5870	18.1830				
SEX	0.0020	0.0843	.6738	22.9969		
BLACK	-0.0253	-1.0136				
CHINESE	0.0279	1.1606				
FILIPINO	0.0207	0.8518				
JAPANESE	-0.0080	-0.3292				
MEXICAN	-0.0049	-0.1612				
OTHER RACE	-0.0228	-0.9319				
PHY-HCAP	-0.0139	-0.5667				
TITLE-I	0.0102	0.4248				
BIL. PRGM	-0.0113	-0.4706				
REMED-RD	-0.0604	-2.3303				
MIL-U-RD	-0.1088	-4.2439				
FOL. THRU	0.0257	1.0260				
HEADSTR	-0.0074	-0.3862				
OTHER-SP	0.0258	1.0282				
SES	0.0803	2.6840				
BIL. ABILITY	0.0171	0.6092				
Constant	15.1076	.5640	29.3702	6.4299	104.7267	22.6109
Degrees of Freedom	454/20		471/3		474/2	
r <sup>2</sup>	.7476		.7211		.4080	



Table 11

Regression Results for Grade 2 Mathematics: Partial correlations coefficients for teacher expectation, fall achievement, and selected demographic characteristics with spring achievement.

Variables	Equation 1		Equation 2		Equation 3	
	Beta	t	Beta	t	Beta	t
T.EXP.-F	0.1557	4.8792	0.1606	5.2912	.5176	13.2537
MTHTOT-F	0.6949	20.6877	0.7247	23.8719		
SEX	-0.0298	-1.1040				
BLACK	-0.0481	-1.7082				
CHINESE	0.0176	0.7268				
FILIPINO	0.0032	0.1151				
JAPANESE	-0.0024	-0.0888				
MEXICAN	-0.0257	-0.7548				
OTHER RACE	-0.0121	-0.4393				
PHY-HCAP	-0.0695	-2.5389				
TITLE-I	-0.0004	0.0150				
BIL.PRCM	0.0060	0.2212				
REMED-RD	-0.0011	-0.0377				
MIL-U-RD	-0.0234	-0.8273				
FOLLOW THROUGH	0.0027	0.0944				
HEADSTRT	-0.0032	-0.1166				
OTHER-SP	0.0258	0.9296				
SES	0.0263	0.7969				
BIL. ABILITY	-0.0114	-0.3573				
Constant	58.1199	3.0736	47.0343	10.5446	141.0189	45.4996
Degrees of Freedom	462/20		479/3		480/2	
r <sup>2</sup>	.6760		.6657		.2679	



Table 12

Regression Results for Grade 5 Reading: Partial correlations coefficients for teacher expectations, fall achievement, and selected demographic characteristics with spring achievement.

Variables	Equation 1		Equation 2		Equation 3	
	Beta	t	Beta	t	Beta	t
T.EXP.-F	0.2676	8.5344	.2239	7.1033	.6539	20.5075
TOTRED-F	.05559	16.6741				
SEX	0.0116	0.4952	.6603	20.9515		
BLACK	-0.0803	-3.1999				
CHINESE	0.0283	1.2343				
FILIPINO	0.0307	1.3141				
JAPANESE	0.0425	1.8070				
MEXICAN	-0.0232	-0.8820				
OTHER RACE	-0.0089	-0.3727				
PHY-HCAP	-0.0062	-0.2641				
TITLE-I	-0.0314	-1.3257				
BIL.PRGH	0.0221	0.9355				
REMED-RD	0.0206	0.8637				
MIL-U-RD	-0.0411	-1.7025				
HEADSTRT	0.0231	0.9637				
OTHER-SP	0.1073	4.3891				
SES	0.0653	2.3643				
BIL. ABILITY	0.0644	2.6904				
Constant	-117.0333	2.3728	10.3427	1.8932	106.2165	26.6928
Degrees of Freedom	546/19		562/3		563/2	
r <sup>2</sup>	.7162		.6786		.4276	

Table 13

Regression Results for Grade 5 Mathematics: Partial correlation coefficients for teacher expectations, fall achievement, and selected demographic characteristics with spring achievement.

Variables	Equation 1		Equation 2		Equation 3	
	Beta	t	Beta	t	Beta	t
T.EXP.-R	0.1756	6.3759	.1599	5.9563	.6299	19.8021
MTHTOT-F	0.6793	22.5614				
SEX	0.0122	0.5806	.7507	27.9716		
BLACK	-0.0531	-2.3337				
CHINESE	0.0083	0.3989				
FILIPINO	0.0251	1.1870				
JAPANESE	0.0482	2.2552				
MEXICAN	-0.0220	-0.9306				
OTHER RACE	-0.0051	0.3767				
PHY-HCAP	-0.0290	-1.3743				
TITLE-I	0.0249	1.1673				
BIL.PRGM	0.0085	0.4005				
REMED-RD	-0.0261	-1.2176				
MIL-U-RD	-0.0174	-0.7892				
HEADSTRT	0.0015	0.0712				
OTHER-SP	0.0634	2.8686				
SES	0.0635	2.5566				
BIL. ABILITY	-0.0067	0.3063				
Constant	.4848	.0130	10.0273	2.5139	105.1860	33.2276
Degrees of Freedom	579/19		595/3		596/2	
r <sup>2</sup>	.7549		.7395		.3968	

In terms of actual spring achievement for students of a similar fall achievement level but ranked differently by their teachers, the effect can be calculated from the unstandardized coefficients of equation 2. These are:

- 1) for second grade reading:

$$Y_1 = 29.3702 + 5.4719 (X_1) + .7382 (X_2)$$

- 2) for second grade mathematics:

$$Y_1 = 47.0343 + 2.0485 (X_1) + .7802 (X_2)$$

- 3) for fifth grade reading:

$$Y_1 = 10.3427 + 4.3996 (X_1) + .7777 (X_2)$$

- 4) for fifth grade mathematics:

$$Y_1 = 10.0273 + 2.4928 (X_1) + .8596 (X_2)$$

where  $Y_1$  is the spring score,  $X_1$  is teacher expectations, and  $X_2$  is fall achievement score.

Solving these equations for students achieving at the mean for the grade level and test, we find that the differences in achievement between students ranked at the highest and at the lowest of teacher expectations are 49.2 points in second grade reading, 18.5 points in second grade mathematics, 39.6 points in fifth grade reading and 22.4 points in fifth grade mathematics. The size of this effect, therefore, is approximately one standard deviation in second grade reading, four-fifths of a standard deviation for fifth grade reading and one-half a standard deviation for mathematics at both grade levels.

Since there is colinearity between fall and spring student achievement scores and since there is equally great colinearity between fall teacher expectations and fall student achievement scores, we wished to partial out the effect of initial student achievement level on teacher

expectations. This was done by creating a residual score which was the difference between the actual spring score and the score predicted by the fall score (see Table 14). This residual may be thought of as the change in achievement which was not directly a function of the student's prior achievement level. Table 15 shows the partial correlations of teacher expectations with these residual scores. All four coefficients are significant at the .001 level or better, although the contribution to the  $r^2$  is low. In terms of estimated effect, each higher level of teacher expectation is associated with a residual gain of 3.1 points in second grade reading, 1.4 points in second grade mathematics, 2.4 points in fifth grade reading and 1.3 points in fifth grade mathematics. Thus, this analysis also confirms the relationship between teacher expectation and student achievement, although the size of the effect is estimated to be half as great.

#### The Effects of Teacher Expectation on the Average Student

In the previous analysis we estimated the effects of teacher expectations on students, including in our analysis students of all initial achievement levels. What is more interesting is the differential effect of teacher expectations on the average student. The average student, in this case, is defined as a student achieving within one-half of a standard deviation from the mean total score in the fall. We selected for this analysis students whose second grade reading scores fell between 134 and 188, whose second grade mathematics scores fell between 137 and 169, whose fifth grade reading scores fell between 162 and 208, and whose fifth grade

Table 14

Regression results used for computing  
estimated spring scores from fall scores

	$\beta$	$\beta_1$ (Fall Score)	$r^2$
Second grade reading	34.1872 (4.9046)	.8989 (.0288)	.6733
Second grade mathematics	45.3962 (4.5732)	.8654 (.0292)	.6461
Fifth grade reading	3.6317 (3.6122)	.9494 (.0294)	.6498
Fifth grade mathematics	5.9980 4.0430	.9742 (.0246)	.7239

$$X_2 \text{ (Est)} = \beta_0 + \beta_1 X_1$$

$$\text{Residual} = X_2 - X_2 \text{ (Est)}$$

Table 15

Correlations of teacher expectations with  
residual achievement (from Appendix B)

Teacher expectation (partial correlation coefficient, with effects of sex, race, special programs, bilingual ability, SES removed).			
	<u><math>\sigma</math></u>	<u><math>t</math></u>	<u><math>r^2</math>-contrib.</u>
Second Grade			
Residual reading	.2648	5.6049	.0595
Residual mathematics	.1826	3.7833	.0289
Fifth Grade			
Residual reading	.2090	4.7511	.0369
Residual mathematics	.1558	3.6101	.0211

mathematics scores fell between 140 and 178 in the fall. Tables 16 and 17 present the regression results for the effects of teacher expectation on residual achievement, partialling out other student attitude, expectation and demographic variables. The residual score was calculated from the total population estimates described previously.

Teacher expectations are the strongest correlate of residual gain scores for second and fifth grade reading and second grade mathematics; only for fifth grade mathematics is the partial correlation coefficient of teacher expectations lower than coefficients of other variables. In terms of estimated effect, that is, the metric regression coefficient, on student residual gain, teacher expectations are related to gains of 4.6 points in second grade reading, 2.2 points in second grade mathematics, 3.6 points in fifth grade reading, and 1.5 points (but a non-significant correlation) in fifth grade mathematics after the effects of student demographic, attitudinal and expectation measures are partialled out. The difference between the gains of average students for whom teachers hold the highest expectations and the gains of average students for whom teachers hold the lowest expectations are, therefore, 41.4 points in second grade reading, 19.8 points in second grade mathematics, 32.4 points in fifth grade reading and 13.5 points in fifth grade mathematics. These estimates are close to those computed for the total population, being close to one standard deviation in reading and half of one standard deviation in mathematics.

Table 16

Estimates of the contribution of teacher expectations, self expectations and attitudes, and selected demographic characteristics to the residual achievement of students achieving at the mean (plus or minus one-half standard deviation) on fall total mathematics score

Variables	Residual Mathematics			
	Second Grade		Fifth Grade	
	Beta	t	Beta	t
Teacher Expectations	.2821	(3.74)	.1324	(1.72)
Student Self Expectation	.1446	(1.98)	.0295	(0.35)
Student Attitude Toward Mathematics	-.0032	(0.04)	.0980	(1.19)
Female	-.0632	(0.87)	.0225	(0.31)
Black	.0229	(0.31)	-.2244	(2.99)
Chinese	.0755	(1.08)	---	---
Filipino	.0259	(0.33)	.0192	(0.26)
Japanese	-.0222	(0.32)	.0309	(0.43)
Mexican	.0419	(0.51)	-.1194	(1.48)
Other Race	-.1253	(1.68)	.0056	(0.07)
Physical Handicap	-.0654	(0.92)	-.1014	(1.43)
Title I	-.0805	(1.17)	.0255	(0.33)
Bilingual Program	.1308	(1.92)	-.0051	(0.07)
Remedial Reading	-.0249	(0.35)	-.0145	(0.19)
Miller-Unruh	-.0434	(0.61)	-.1235	(1.73)
Headstart	.0409	(0.57)	.0386	(0.55)
Other Special Program	.0828	(1.11)	.1594	(2.17)
Socioeconomic Status as Perceived by Teacher	.0852	(1.06)	.1341	(1.71)
Bilingual Ability	-.0145	(0.17)	.0419	(0.59)
Constant	-24.3253	(.7751)	-90.8844	(.8001)
Degrees of Freedom	177/20		177/19	
r <sup>2</sup>	.2042		.1550	



Table 17

Estimates of the contribution of teacher expectations, self expectations and attitudes, and selected demographic characteristics to residual achievement of students achieving at the mean (plus or minus one-half standard deviation) on the fall total reading score

Variable	Residual Reading			
	Second Grade		Fifth Grade	
	Beta	t	Beta	t
Teacher Expectation	.2999	(3.39)	.2496	(3.15)
Student Self Expectation	.1011	(1.23)	.0111	(0.13)
Student Attitude Toward Reading	-.0868	(1.06)	.1426	(1.70)
Female	-.0052	(0.06)	-.0344	(0.48)
Black	.1003	(1.21)	-.1617	(2.18)
Chinese	.1459	(1.83)	.0750	(1.09)
Filipino	.1380	(1.34)	.0921	(1.26)
Japanese	-.0450	(0.57)	.0048	(0.07)
Mexican	.0391	(0.30)	.0082	(0.11)
Other Race	-.0946	(1.15)	.0329	(0.46)
Physical Handicap	.0861	(1.06)	-.0380	(0.54)
Title I	.0133	(0.17)	-.0648	(0.88)
Bilingual Program	-.0934	(0.93)	.1050	(1.44)
Remedial Reading	-.1526	(1.89)	.0751	(1.01)
Miller-Unruh	-.1422	(1.49)	.0224	(0.29)
Headstart	---	---	.0024	(0.03)
Other Special Program	.1036	(1.25)	.1079	(1.42)
Socioeconomic Status as Perceived by Teacher	.0618	(0.65)	.1924	(2.47)
Bilingual Ability	.1764	(1.23)	.1408	(2.01)
Constant	-136.1442	(1.9971)	-398.3497	(2.3589)
Degrees of Freedom	115/19		172/20	
r <sup>2</sup>	.3318		.2041	

### Student Expectation Effects on

### Student Achievement

It has been argued (Rappaport and Rappaport, 1975; Entwisle and Webster, 1974) that student expectation effects on achievement gains are as great as teacher expectation effects. We find limited confirmation of this hypothesis in our data. Comparing equations 2 and 4 in the tables of Appendix B, we find that the partial correlation coefficients of student expectation with residual gain score are as significant ( $p < .001$ ) as those of teacher expectations, but that the partial correlations are lower for both test and grade.

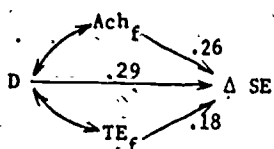
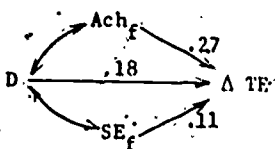
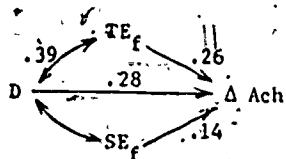
### The Process of Change

What happens to cause teachers expectations, student expectations and student achievement to change? We have explored these questions through examining fall correlates of residual change in each of these measures. These relationships are presented in Figure 3, and Tables 18 and 19, separated by test and by grade level.

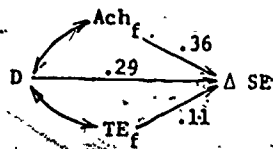
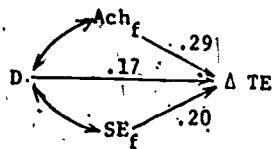
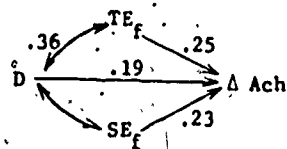
From Figure 3 and the correlation matrices we see that change in achievement is correlated directly with demographic variables about as much as with teacher expectations partialling out demographic variables. In addition, we see that change in teacher expectations is consistently related to fall achievement with the effects of demographic variables partialled out. Student expectations, however, have a somewhat lesser effect on change in either achievement or teacher expectations, with the exception of second grade mathematics.

## SECOND GRADE

## Reading

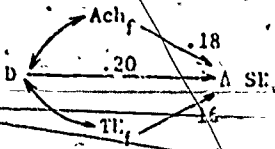
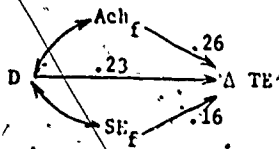
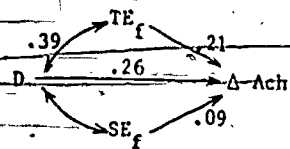


## Mathematics



## FIFTH GRADE

## Reading



## Mathematics

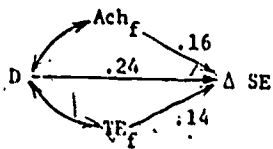
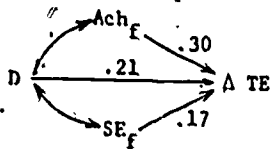
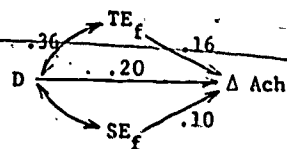


Figure 3

Relationships between demographic variables (D), teacher expectations (TE), student expectations (SE), and student achievement (Ach).

Table 18

Reading Correlations: Second grade above diagonal,  
fifth grade below diagonal (from Appendix A)

	TE	SE	ATT	PE	ACH	$\Delta$ TE	$\Delta$ SE	$\Delta$ ACH
Fall Teacher Expectation (TE)	---	.30	.02	.48	.56	---	.21	.32
Self Expectation (SE)	.36	---	.06	.22	.42	.11	---	.18
Attitude Toward Reading (ATT)	.35	.51	---	.07	-.03	.09	.04	-.03
Peer Expectation (PE)	.54	.24	.24	---	.40	.16	.22	.14
Fall Achievement (ACH)	.65	.24	.30	.38	---	.24	.30	---
TE Residual ( $\Delta$ TE)	---	.15	.06	.15	.21	---	.15	.16
SE Residual ( $\Delta$ SE)	.20	---	.16	.08	.20	.08	---	.12
Achievement Residual ( $\Delta$ ACH)	.22	.07	.03	.16	---	.03	.09	---

Table 19.

Mathematics Correlations: Second grade above diagonal, fifth  
grade below diagonal (from Appendix A)

	TE	SE	SATT	PE	ACH	ΔTE	ΔSE	ΔACH
TE <sub>F</sub>	---	.23	.06	.45	.49	---	.22	.20
SE <sub>F</sub>	.37	---	.05	.23	.43	.24	---	.15
SATT <sub>F</sub>	.33	.51	---	.01	.05	.03	.05	.05
PE <sub>F</sub>	.58	.32	.35	---	.36	.14	.16	.14
ACH <sub>F</sub>	.63	.34	.24	.41	---	.26	.30	---
ΔTE	---	.18	.15	.17	.25	---	.09	.19
ΔSE	.17	---	.15	.09	.17	.14	---	.20
ΔACH	.19	.12	.10	.13	---	.09	.14	---

### Summary

Two general areas have been discussed in this report: the relationships between teacher expectations and student characteristics which are correlates of expectations; and, the relationships between the expectations of teachers about pupil performance and actual pupil performance. The results are summarized below.

#### What Student Characteristics Provoke Differential Teacher Expectations?

1. Student achievement was the most significant predictor of teacher expectations.
2. The sex of the student was a significant ( $p < .05$ ) correlate of teacher expectation for reading at both grade levels, but not for mathematics, after other variables were partialled out.
3. Being "black" was not a correlate of teacher expectations in second grade, while it was a correlate in fifth grade. In the fifth grade, teachers held higher expectations for black students than for white students.
4. Being "Oriental" was generally positively correlated with teacher expectations.
5. Being Mexican-American was positively correlated with teacher expectations for second grade mathematics and fifth grade reading.

6. Having a physical handicap was negatively associated with teacher expectations for second grade but not for fifth grade.
7. In general, having participated in compensatory education programs is negatively associated with teacher expectations. The only exception is having participated in a Miller-Unruh program in second grade.
8. Social class was not related to teacher expectations.
9. Teachers held higher expectations for bilingual students.
10. Students' own expectations and attitudes were generally positively correlated with teacher expectations.

What is the Effect of Teacher Expectations on  
Student Achievement Change?

1. Teacher expectations were modestly but consistently and significantly related to spring student achievement when the effects of entry level skills had been partialled out. Teacher expectations accounted for from three to nine percent of the variance in spring achievement, and that relationship was consistent for both second and fifth grade students in both reading and mathematics.
2. Although small, the contributions to the variance in student academic growth provided by teacher expectations was greater than the contributions of the more conventional demographic indices such as sex, race and social class.
3. When the effects of teacher expectation on residual gain scores were examined, three to nine percent of the variance in gain was explained by teacher expectations.

4. High teacher expectations were estimated to increase the achievement of the average student as much as one standard deviation, when compared to similar students for whom teachers held low expectations.

This paper has addressed the teacher expectation problem using methods which differ from those used in previous research. Previous research has focused on changing teacher expectations experimentally and observing differences in student outcomes; teacher expectations were not manipulated in this study. In studies in which teacher expectations were measured rather than manipulated, student performance outcomes have not been measured nor controlled for; in this study, teacher expectations were measured and student performance outcomes observed at two points in time.

The findings suggest that although self-induced teacher expectations are generally well founded, and not negatively biased against minority students, males or females, when teachers hold higher versus lower expectations for similar average students, the difference in the subsequent achievement can be as much as one standard deviation apart.

This finding suggests that although the correlations between teacher expectations and subsequent student achievement are low, they should not be overlooked, as the impact on student achievement can be substantial.



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APPENDIX A  
Correlation Matrices

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APPENDIX A  
Correlation Matrices

CORRELATION MATRIX

Grade 2 - Reading

SEX	BLACK	CHINESE	FILIPINO	JAPANESE	MEXICAN	AMERICAN	WHITE	OTHER-RA	PHY-HCAP
SEX	1.0000								
BLACK	0.0844	-0.0477	-0.0072	0.0061	0.0013	0.0	-0.0113	-0.0554	-0.0022
CHINESE	1.0000	-0.0564	-0.0153	-0.0698	-0.1187	0.0	-0.4267	-0.0654	-0.0094
FILIPINO	-0.0564	1.0000	-0.0205	-0.0399	-0.0688	0.0	-0.2474	-0.0379	-0.0513
JAPANESE	-0.0072	-0.0205	1.0000	-0.0250	-0.0431	0.0	-0.1549	-0.0238	-0.0325
MEXICAN	-0.0688	-0.0399	-0.0250	1.0000	-0.0840	0.0	-0.3019	-0.0463	-0.0254
AMERICAN	-0.01187	-0.0688	-0.0431	-0.0840	1.0000	0.0	-0.5210	-0.0799	-0.0463
WHITE	0.0	0.0	0.0	0.0	0.0	0.0	1.0000	-0.2872	0.0
OTHER-RA	-0.0554	-0.0379	-0.0238	-0.0463	-0.0799	0.0	-0.2872	1.0000	-0.0602
PHY-HCAP	-0.0022	-0.0094	-0.0325	-0.0254	-0.0463	0.0	-0.0602	-0.0602	1.0000
TITLE-1	-0.0041	-0.0942	-0.0074	-0.0144	-0.0248	0.0	-0.0208	-0.0137	-0.0187
BIL-PRGM	-0.0272	-0.0187	-0.0117	-0.0228	0.1470	0.0	-0.0546	-0.0217	-0.0256
REPED-RO	-0.0343	-0.0285	-0.0238	-0.0463	0.1726	0.0	-0.0669	0.0311	0.1379
MIL-U-RO	0.0020	-0.0478	-0.0284	-0.0553	0.0930	0.0	-0.0423	-0.0381	-0.0043
FOL-THRU	0.0432	0.1475	-0.0052	-0.0101	-0.0175	0.0	-0.0629	-0.0077	-0.0132
HE-STRY	-0.0059	-0.0167	-0.0104	-0.0204	0.1730	0.0	-0.1262	0.0344	-0.0244
TIME SP	-0.0764	-0.1035	-0.0254	-0.0874	-0.0136	0.0	0.1370	-0.0375	0.1523
SES	0.0436	-0.0703	-0.0226	0.0164	-0.4546	0.0	0.3419	-0.0606	-0.0614
BIL-CES	0.0647	0.0798	-0.0156	-0.0093	-0.4434	0.0	0.3211	-0.0839	-0.0050
T-EXP-F	-0.1207	-0.0137	0.0613	0.1500	-0.1493	0.0	0.0157	-0.0378	-0.1226
P-EXP-S	0.1115	0.0065	0.0462	0.1653	-0.1697	0.0	0.0121	-0.0157	-0.1326
P-EXP-F	0.0086	-0.0556	-0.0134	0.1160	-0.0331	0.0	-0.0147	0.0317	-0.0023
P-EXP-S	-0.0295	-0.0672	0.0130	0.0641	-0.0517	0.0	-0.0098	0.0329	-0.0023
S-EXP-F	-0.0267	0.0239	-0.0414	-0.0269	-0.2701	0.0	0.1608	-0.0382	-0.0043
S-EXP-S	-0.0054	0.0268	-0.0236	-0.0023	-0.2066	0.0	0.1451	-0.0314	-0.0047
ATT-R-F	0.1434	0.0895	0.0772	0.0851	-0.0079	0.0	-0.1610	-0.0132	-0.1201
ATT-R-S	0.1397	0.1039	0.0340	0.1120	0.0731	0.0	-0.2351	0.0986	-0.1022
CAL-RC-F	0.0640	-0.0121	0.0133	0.0655	-0.2315	0.0	0.1086	-0.0080	-0.0942
CAL-RC-S	0.1404	0.0210	0.0802	0.0621	-0.2285	0.0	0.0960	-0.0435	-0.0912
RAPPLC-F	0.0688	-0.0268	-0.0303	0.0439	-0.2394	0.0	0.1616	-0.0211	-0.0043
RAPPLC-S	0.0548	-0.0598	0.1129	0.0613	-0.2549	0.0	0.1480	-0.0181	-0.0947
CECDDI-F	0.0891	-0.0366	0.0608	0.0336	-0.2439	0.0	0.1697	-0.0243	-0.0023
CECDDI-S	0.0509	-0.0634	0.0387	0.0562	-0.2113	0.0	0.1440	-0.0077	-0.0717
RACHM-F	0.0917	-0.0170	0.0082	-0.0134	-0.1763	0.0	0.1305	0.0162	0.0105
RACHM-S	0.0537	-0.0820	0.0446	0.0396	-0.1934	0.0	0.1499	-0.0428	-0.0023
TOIRED-F	0.0849	-0.0299	0.0071	0.0309	-0.2375	0.0	0.1514	-0.0039	-0.0180
TOIRED-S	0.0875	-0.0498	0.0424	0.0597	-0.2504	0.0	0.1488	-0.0380	-0.0544
IOI-RES	0.0312	-0.0443	0.0641	0.0601	-0.0972	0.0	0.0431	-0.0609	-0.0674
T-EX-RES	0.0184	0.0335	-0.0108	0.0723	-0.0816	0.0	-0.0521	-0.0043	-0.0619
S-EX-RES	0.0080	0.0177	-0.1002	0.0116	-0.0909	0.0	0.0791	-0.0286	-0.0668



## CORRELATION MATRIX (continued)

Grade 2 - Reading

	WHITE-I	BIL-PRGM	REMED-RO	MIL-U-RO	FOL-THRU	HEADSTRY	OTHER-SP	SES	BIL-CES	I-EXP-F
SEX	-0.0041	-0.0272	-0.0343	0.0020	0.0432	-0.0019	-0.0764	0.0436	0.0647	0.1257
BLACK	-0.0042	-0.0322	0.0285	0.0078	0.1475	-0.0284	-0.1036	-0.0793	0.0793	-0.0117
CHINESE	-0.0118	-0.0197	-0.0319	-0.0453	-0.0083	-0.0167	-0.0542	0.1135	0.0443	0.0752
HILIPINO	-0.0074	-0.0117	-0.0238	-0.0284	-0.0052	-0.0104	-0.0254	-0.0246	-0.1526	0.0618
JAPANESE	-0.0144	-0.0228	-0.0463	-0.0453	-0.0101	-0.0204	-0.0874	0.0184	-0.0093	0.1508
MEXICAN	-0.0248	0.1470	0.1726	0.0930	-0.0175	0.1730	-0.0136	-0.4546	-0.4434	-0.1491
VIETNAMESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WHITE	-0.0208	-0.0546	-0.0669	-0.0423	-0.0629	-0.1262	0.1390	0.3419	0.3211	0.5157
CISER-RA	-0.0137	-0.0217	-0.0081	-0.0081	-0.0077	-0.0954	-0.0225	-0.0606	-0.0839	-0.0278
PHY-PCAP	-0.0187	-0.0296	-0.079	-0.0043	-0.0132	-0.0264	0.1520	0.0614	-0.0050	-0.1226
ITILE-PI	1.0000	-0.0067	-0.0137	0.1217	-0.0030	-0.0060	0.0345	-0.0015	0.0167	-0.0374
BIL-PRGM	-0.0067	1.0000	0.0811	0.0617	-0.0047	-0.0395	0.0114	-0.1443	-0.0413	-0.0274
REMED-RO	-0.0137	0.0811	1.0000	-0.0081	0.2191	-0.0194	-0.0162	-0.2059	-0.0839	-0.0227
MIL-U-RO	0.1217	0.0617	-0.0081	1.0000	0.1835	0.0747	-0.0697	-0.1867	0.0348	-0.0617
FOL-THRU	-0.0030	-0.0047	0.2191	0.1835	1.0000	-0.0042	-0.0277	-0.0500	0.0118	-0.0427
HEADSTRY	-0.0060	-0.0095	0.0747	0.0747	-0.0042	1.0000	-0.0555	0.0475	-0.0520	-0.0246
CISER-SP	-0.0345	0.0314	0.0747	-0.0067	-0.0277	-0.0555	1.0000	0.0475	-0.1122	-0.0237
SES	-0.0015	-0.1343	0.2059	-0.1867	-0.0500	-0.1495	0.0475	1.0000	0.3299	0.2241
BIL-CES	-0.0167	-0.0413	0.0839	0.0348	0.0118	-0.0520	-0.1122	-0.3299	1.0000	0.1620
I-EXP-F	-0.0374	-0.0234	0.2474	-0.0617	-0.0427	-0.0286	-0.0637	0.2241	0.1526	1.5650
T-EXP-F	-0.0236	-0.0096	0.0917	-0.1063	-0.0582	0.0289	-0.0701	0.1988	0.1609	0.3423
P-EXP-F	-0.0338	0.0271	0.0989	-0.0532	-0.0171	-0.0170	-0.0103	0.1280	0.0662	0.4701
S-EXP-F	-0.0782	-0.0570	0.1034	-0.0854	-0.0315	-0.0215	-0.0326	0.1719	0.1079	0.4449
S-EXP-S	-0.0400	-0.1033	0.1532	-0.1354	0.0290	-0.0691	0.0394	0.3063	0.1685	0.2170
ATT-H-F	0.0352	-0.0322	0.1006	-0.0353	-0.0212	0.1113	0.0790	0.3081	0.1302	0.3249
ATT-R-S	-0.0000	0.0629	0.0526	-0.0293	0.0445	0.0302	-0.0331	-0.0195	-0.0115	-0.0173
CY-RC-S	-0.0223	-0.0313	-0.2146	0.0293	-0.0710	-0.0547	-0.0635	-0.1343	-0.1313	-0.0342
CY-RC-F	-0.0298	-0.0620	0.2723	-0.2197	-0.0025	-0.0541	0.1403	0.3753	0.1102	0.0427
R-PLC-S	0.0053	-0.0028	-0.2119	-0.2353	-0.0440	-0.1243	0.0663	0.4254	0.1756	0.0473
R-PLC-F	-0.0271	-0.0028	-0.2119	-0.2353	-0.0440	-0.1243	0.0663	0.4254	0.1756	0.0473
DECOI-F	-0.0271	-0.0028	-0.2119	-0.2353	-0.0440	-0.1243	0.0663	0.4254	0.1756	0.0473
DECOI-S	-0.0484	-0.1108	0.2226	-0.1955	-0.0765	0.0265	0.0789	0.4228	0.2185	0.0420
RAGNY-F	-0.0346	-0.0282	0.1622	-0.2410	-0.0614	-0.0640	0.0094	0.4031	0.1538	0.0412
RAGNY-S	-0.0233	-0.0700	0.2168	-0.2308	-0.0602	-0.0672	0.0566	0.3475	0.1344	0.0417
TORED-F	-0.0278	-0.0542	0.2150	-0.3096	-0.0921	-0.0782	0.1174	0.3621	0.1322	0.0423
TORED-S	-0.0295	-0.0712	0.2687	-0.2555	-0.0438	-0.0684	0.1468	0.4284	0.1824	0.0421
IGT-F	-0.0117	-0.0468	0.1613	-0.2292	-0.0325	-0.0809	0.1026	0.4308	0.1795	0.0457
IGT-S	-0.0102	-0.0077	0.0672	-0.1392	-0.0289	-0.0434	-0.0313	0.1443	0.0810	0.0477
I-EXP-RES	-0.0488	-0.0867	-0.1187	-0.1008	-0.0412	-0.0090	-0.0306	0.0186	0.0610	0.0001
S-EXP-RES				-0.1081	-0.0393	0.0237	0.0637	0.1865	0.0582	0.2040



## CORRELATION MATRIX (continued)

Grade 2 -- Reading

57

	T.EXP.-S	P.EXP.-F	P.EXP.-S	S.EXP.-F	S.EXP.-S	ATT.-R-F	ATT.-R-S	CAT.-RC-F	CAT.-RC-S	RAPPLC-F
SEX	0.1115	0.0086	-0.0295	-0.0267	-0.0054	0.1434	0.1397	0.0640	0.1404	0.3683
BLACK	0.0065	-0.0556	-0.0672	0.0739	0.0268	0.0875	0.1039	-0.0121	0.0210	-0.0268
CHINESE	0.0401	0.0429	0.1081	0.0522	-0.0236	0.0772	0.0360	0.0857	0.0802	0.0303
FILIPINO	0.0462	-0.0134	0.0130	0.0416	-0.0691	0.0693	0.0756	0.0133	0.0528	-0.0266
JAPANESE	0.1653	0.1160	0.0641	-0.0269	-0.0023	0.0851	0.1120	0.0655	0.0621	0.0439
MEXICAN	-0.1697	-0.0331	-0.0517	-0.0201	-0.0266	-0.0079	0.0731	-0.0235	-0.0285	-0.0234
AMERICAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WHITE	0.0121	-0.0167	-0.0088	0.1608	0.1451	-0.0160	-0.0231	0.1085	0.0960	0.1616
CITE-RA	-0.0257	0.0217	0.0329	-0.0083	0.0214	0.0732	0.0936	-0.0030	-0.0435	-0.0211
PHY-HCAP	-0.1366	-0.0520	-0.0805	0.0049	-0.0567	-0.1201	-0.1022	-0.0042	-0.0512	-0.0333
TITLE-I	-0.0260	-0.0236	-0.0338	0.0282	-0.0300	0.0352	0.0006	-0.0523	-0.0298	0.0032
BIL-PRGM	-0.0234	-0.0046	0.0291	-0.0570	-0.1033	-0.0322	0.0689	-0.0318	-0.0620	-0.0323
REMEDI-RC	-0.2474	-0.0917	-0.0089	-0.1034	-0.1532	0.0106	0.0526	-0.0214	-0.0273	-0.0719
MIL-U-RC	-0.1063	-0.0583	-0.0532	-0.0854	-0.1354	-0.0553	0.0298	-0.0219	-0.0231	-0.0233
FOL-THRU	-0.0582	-0.0171	-0.0315	0.0290	-0.0212	0.0445	0.0710	-0.0025	-0.0660	-0.0449
W-PSRT	-0.0709	-0.0198	-0.0215	-0.0691	-0.0113	0.0302	-0.0599	-0.0541	-0.0709	-0.1243
CINER-SP	-0.0701	-0.0103	-0.0326	0.0894	0.0990	-0.0331	-0.0636	0.1403	0.0853	0.1257
SES	0.1988	0.1280	0.1719	0.3263	0.3081	-0.0195	-0.1368	0.3953	0.4254	0.4168
BIL. CES	0.1609	0.0662	0.1079	0.1685	0.1302	-0.0115	-0.1313	0.1102	0.1756	0.1943
T.EXP.-F	-0.8423	0.4791	0.4448	0.2596	0.3249	0.0173	-0.0442	0.5396	0.4673	0.4673
T.EXP.-S	1.0000	0.4883	0.5010	0.3133	0.3716	0.0655	-0.0114	0.5769	0.6018	0.5075
P.EXP.-F	0.4883	1.0000	0.6945	0.2168	0.2993	0.0713	-0.0432	0.4071	0.3623	0.3254
P.EXP.-S	0.5010	0.6945	1.0000	0.2669	0.3305	0.1331	0.0304	0.3775	0.3808	0.2994
S.EXP.-F	0.3133	0.2168	0.2669	1.0000	0.4676	0.0560	-0.0489	0.4035	0.3960	0.3331
S.EXP.-S	0.3716	0.2993	0.3305	0.4676	1.0000	0.0603	-0.0655	0.4283	0.4408	0.3331
ATT.-R-F	0.0645	0.0713	0.1331	0.0560	0.0603	1.0000	0.3944	-0.0373	-0.0250	0.0131
ATT.-R-S	-0.0114	-0.0432	0.0304	-0.0489	-0.0055	0.3944	1.0000	-0.0524	-0.0634	-0.0175
CAT.-RC-F	0.5769	0.4071	0.3775	0.4035	0.4288	-0.0373	-0.0524	1.0000	0.7116	0.7283
CAT.-RC-S	0.6018	0.3623	0.3808	0.3960	0.4408	-0.0250	-0.0634	0.7116	1.0000	0.6657
RAPPLC-F	0.5095	0.3254	0.2994	0.3391	0.3819	0.0101	-0.0875	0.7283	0.6657	1.0000
RAPPLC-S	0.6497	0.3889	0.3675	0.4376	0.4491	-0.0498	-0.1304	0.6837	0.7102	0.6213
CECOCIT-F	0.6474	-0.4201	0.4125	0.4418	0.5279	-0.0289	-0.1681	0.7752	0.7125	0.7226
CECOCIT-S	0.6525	0.3622	0.3830	0.4393	0.5067	-0.0004	-0.1160	0.6421	0.6421	0.6137
RACHMT-F	0.5332	0.3635	0.3507	0.3969	0.4424	-0.0467	-0.0984	0.7332	0.6795	0.7722
RACHMT-S	0.6133	0.3558	0.3588	0.3736	0.4345	-0.0298	-0.0618	0.6946	0.6858	0.6316
TOIRED-F	0.5969	0.4021	0.3777	0.4203	0.4644	-0.0266	-0.0918	0.8919	0.7603	0.8936
TOIRED-S	0.6925	0.4106	0.4171	0.4477	0.4907	-0.0395	-0.0964	0.7710	0.6712	0.7337
TP1-RES	0.3546	0.1411	0.1874	0.1798	0.1918	-0.0310	-0.0368	0.0685	0.4226	-0.0453
T.EX-RES	0.5391	0.1574	0.2343	0.1132	0.1817	0.0944	0.0479	0.1906	0.2732	0.2152
S.EX-RES	0.2546	0.2241	0.2328	0.0000	0.8840	0.0386	0.0196	0.2716	0.2892	0.2532

## CORRELATION MATRIX (continued)

## Grade 2 - Reading

	RAPPLC-S	DECOCT-F	DECOCT-S	RACHMT-F	RACHMT-S	TOIRED-F	TOIRED-S	TOI-RES	T-FX-2FS	S-EX-RES
SEX	0.0548	0.0491	0.0509	0.0917	0.0537	0.0849	0.0675	0.0312	0.0184	0.0089
ELACK	-0.0098	-0.0306	-0.0634	-0.0370	-0.0820	-0.0299	-0.0498	-0.0443	0.0335	0.0177
CHINESE	0.1129	0.0280	0.0289	0.0319	0.0657	0.0505	0.0963	0.0959	0.0310	0.0343
FILIPINO	0.0200	0.0008	0.0387	0.0082	0.0446	0.0071	0.0424	0.0641	-0.0108	0.0122
JAPANESE	0.0613	-0.0336	0.0562	-0.0134	0.0396	0.0309	0.0597	0.0601	0.0723	-0.0116
MEXICAN	-0.2549	-0.2439	-0.2113	-0.1763	-0.1934	-0.2375	-0.2504	-0.0972	-0.0816	-0.0309
AMINDIAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WHITE	0.1480	0.1697	0.1440	0.1305	0.1499	0.1514	0.1488	0.0431	-0.0021	0.0791
CITEK-RA	-0.0181	-0.0243	-0.0077	0.0162	-0.1048	-0.0039	-0.0380	-0.0609	-0.0043	0.0255
PHY-HCAP	-0.0989	-0.0240	-0.0717	0.0105	0.0222	-0.0180	-0.0544	-0.0594	-0.0619	-0.0663
TITLE-I	-0.0271	-0.0492	-0.0484	-0.0346	-0.0233	-0.0278	-0.0295	-0.0117	0.0102	-0.0488
PIL-PRGM	-0.0593	-0.1108	-0.0713	-0.0282	-0.0700	-0.0542	-0.0712	-0.0468	-0.0077	-0.0867
REMED-RO	-0.2424	-0.2226	-0.1622	-0.1607	-0.2168	-0.2150	-0.2687	-0.1613	-0.0672	-0.1197
MIL-U-RD	-0.2400	-0.1955	-0.2410	-0.2308	-0.3096	-0.2555	-0.2892	-0.1392	-0.1006	-0.1081
FOL-THRU	0.0132	-0.0766	-0.0614	-0.0602	-0.0921	-0.0438	-0.0525	-0.0289	-0.0412	-0.0493
HEATSTRT	-0.0689	-0.0265	-0.0640	-0.0672	-0.0782	-0.0684	-0.0809	-0.0434	-0.0030	0.0237
SP	0.0717	0.0709	0.1094	0.1366	0.1174	0.1468	0.1026	-0.0313	-0.0306	0.0247
SES	0.4048	0.4228	0.4031	0.3475	0.3631	0.4284	0.4398	0.1543	0.0166	0.1462
BIL. CES	0.1799	0.2185	0.1538	0.1344	0.2322	0.1624	0.1795	0.0810	0.0610	0.0582
T-EXP.-F	0.6071	0.6320	0.5812	0.4887	0.5703	0.5571	0.6387	0.3177	0.0001	0.2090
I-EXP.-S	0.6497	0.6674	0.6525	0.5332	0.6133	0.5969	0.6925	0.3546	0.5391	0.2546
P-EXP.-F	0.3889	0.4201	0.3822	0.3635	0.3658	0.4021	0.4106	0.1411	0.1574	0.2241
S-EXP.-S	0.3875	0.4125	0.3830	0.3507	0.3588	0.3777	0.4171	0.1874	0.2343	0.2328
S-EXP.-F	0.4376	0.4418	0.4373	0.3969	0.3736	0.4203	0.4477	0.1799	0.1132	0.0040
ATT.-S	0.4491	0.5279	0.5067	0.4424	0.4345	0.4644	0.4907	0.1918	0.1817	0.0340
ATT.-F	-0.0498	-0.0289	-0.0204	-0.0467	-0.0298	-0.0266	-0.0395	-0.0310	0.0744	0.0310
ATT.-R-S	-0.1304	-0.1681	-0.1160	-0.0984	-0.0618	-0.0918	-0.0964	-0.0364	0.0479	0.0170
CAT-RC-F	0.6787	0.7752	0.6919	0.7332	0.6944	0.8919	0.7710	-0.0685	0.1906	0.2716
CAT-RC-S	0.7102	0.7125	0.6481	0.6795	0.6858	0.7603	0.8712	0.4326	0.2732	0.2452
RAPPLC-F	0.6213	0.7226	0.6337	0.6722	0.6316	0.8956	0.7087	-0.0458	0.2152	0.2532
RAPPLC-S	1.0000	0.7523	0.7520	0.6515	0.7359	0.7812	0.9144	0.5644	0.2568	0.2766
DECOCT-F	0.7523	1.0000	0.8250	0.7327	0.7292	0.8241	0.8143	0.2414	0.2507	0.3034
DECOCT-S	0.7520	0.8250	1.0000	0.6370	0.7103	0.7239	0.7863	0.3366	0.3024	0.3469
RACHMT-F	0.6515	0.7327	0.6370	1.0000	0.6699	0.9049	0.7403	-0.0040	0.2254	0.2906
RACHMT-S	0.7359	0.7292	0.7103	0.6699	1.0000	0.7377	0.9077	0.5290	0.2467	0.2940
TOIRED-F	0.7212	0.8241	0.7239	0.9049	0.7377	1.0000	0.8206	-0.0000	-0.2368	0.3031
TOIRED-S	0.9144	0.8143	0.7863	0.7403	0.9077	0.8206	1.0000	0.5715	0.2866	0.3183
TOI-RES	0.5644	0.2416	0.3366	-0.0040	0.5290	-0.0000	0.5715	1.0000	0.1614	0.1219
T-EX-RES	0.2568	0.2507	0.3024	-0.2368	0.2467	-0.2368	0.2866	0.1614	1.0000	0.1457
S-EX-RES	0.2766	0.3636	0.3409	0.2906	0.2940	0.3031	0.3193	0.1219	0.1457	1.0000

## Grade 2 - Mathematics

SEX	BLACK	CHINESE	FILIPINO	JAPANESE	MEXICAN	AMERICAN	WHITE	OTHER-RA	PHY-HCAP
SEA	1.0000	0.0004	-0.0441	-0.0105	-0.0041	0.0	0.0073	-0.0697	-0.0134
BLACK	0.0804	-0.0561	-0.0351	-0.0716	-0.1158	0.0	-0.4279	-0.0694	-0.0132
CHINESE	-0.0441	1.0000	-0.0701	-0.0410	-0.0683	0.0	-0.7450	-0.0392	-0.0117
FILIPINO	-0.0351	-0.0201	1.0000	-0.0257	-0.0415	0.0	-0.1535	-0.0246	-0.0124
JAPANESE	-0.0105	-0.0410	-0.0757	1.0000	-0.0847	0.0	-0.3130	-0.0501	-0.0142
MEXICAN	-0.0041	-0.0663	-0.0415	-0.0247	1.0000	0.0	-0.5056	-0.0809	-0.0131
AMERICAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WHITE	-0.0697	-0.0441	-0.0351	-0.0716	-0.0683	0.0	1.0000	-0.2970	-0.0124
OTHER-RA	-0.0694	-0.0392	-0.0246	-0.0501	-0.0809	0.0	-0.2970	1.0000	-0.0132
PHY-HCAP	-0.0134	-0.0117	-0.0124	-0.0142	-0.0131	0.0	-0.0131	-0.0132	1.0000
SEA	1.0000	0.0004	-0.0441	-0.0105	-0.0041	0.0	0.0073	-0.0697	-0.0134
BLACK	0.0804	-0.0561	-0.0351	-0.0716	-0.1158	0.0	-0.4279	-0.0694	-0.0132
CHINESE	-0.0441	1.0000	-0.0701	-0.0410	-0.0683	0.0	-0.7450	-0.0392	-0.0117
FILIPINO	-0.0351	-0.0201	1.0000	-0.0257	-0.0415	0.0	-0.1535	-0.0246	-0.0124
JAPANESE	-0.0105	-0.0410	-0.0757	1.0000	-0.0847	0.0	-0.3130	-0.0501	-0.0142
MEXICAN	-0.0041	-0.0663	-0.0415	-0.0247	1.0000	0.0	-0.5056	-0.0809	-0.0131
AMERICAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WHITE	-0.0697	-0.0441	-0.0351	-0.0716	-0.0683	0.0	1.0000	-0.2970	-0.0124
OTHER-RA	-0.0694	-0.0392	-0.0246	-0.0501	-0.0809	0.0	-0.2970	1.0000	-0.0132
PHY-HCAP	-0.0134	-0.0117	-0.0124	-0.0142	-0.0131	0.0	-0.0131	-0.0132	1.0000
SEA	1.0000	0.0004	-0.0441	-0.0105	-0.0041	0.0	0.0073	-0.0697	-0.0134
BLACK	0.0804	-0.0561	-0.0351	-0.0716	-0.1158	0.0	-0.4279	-0.0694	-0.0132
CHINESE	-0.0441	1.0000	-0.0701	-0.0410	-0.0683	0.0	-0.7450	-0.0392	-0.0117
FILIPINO	-0.0351	-0.0201	1.0000	-0.0257	-0.0415	0.0	-0.1535	-0.0246	-0.0124
JAPANESE	-0.0105	-0.0410	-0.0757	1.0000	-0.0847	0.0	-0.3130	-0.0501	-0.0142
MEXICAN	-0.0041	-0.0663	-0.0415	-0.0247	1.0000	0.0	-0.5056	-0.0809	-0.0131
AMERICAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WHITE	-0.0697	-0.0441	-0.0351	-0.0716	-0.0683	0.0	1.0000	-0.2970	-0.0124
OTHER-RA	-0.0694	-0.0392	-0.0246	-0.0501	-0.0809	0.0	-0.2970	1.0000	-0.0132
PHY-HCAP	-0.0134	-0.0117	-0.0124	-0.0142	-0.0131	0.0	-0.0131	-0.0132	1.0000
SEA	1.0000	0.0004	-0.0441	-0.0105	-0.0041	0.0	0.0073	-0.0697	-0.0134
BLACK	0.0804	-0.0561	-0.0351	-0.0716	-0.1158	0.0	-0.4279	-0.0694	-0.0132
CHINESE	-0.0441	1.0000	-0.0701	-0.0410	-0.0683	0.0	-0.7450	-0.0392	-0.0117
FILIPINO	-0.0351	-0.0201	1.0000	-0.0257	-0.0415	0.0	-0.1535	-0.0246	-0.0124
JAPANESE	-0.0105	-0.0410	-0.0757	1.0000	-0.0847	0.0	-0.3130	-0.0501	-0.0142
MEXICAN	-0.0041	-0.0663	-0.0415	-0.0247	1.0000	0.0	-0.5056	-0.0809	-0.0131
AMERICAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WHITE	-0.0697	-0.0441	-0.0351	-0.0716	-0.0683	0.0	1.0000	-0.2970	-0.0124
OTHER-RA	-0.0694	-0.0392	-0.0246	-0.0501	-0.0809	0.0	-0.2970	1.0000	-0.0132
PHY-HCAP	-0.0134	-0.0117	-0.0124	-0.0142	-0.0131	0.0	-0.0131	-0.0132	1.0000
SEA	1.0000	0.0004	-0.0441	-0.0105	-0.0041	0.0	0.0073	-0.0697	-0.0134
BLACK	0.0804	-0.0561	-0.0351	-0.0716	-0.1158	0.0	-0.4279	-0.0694	-0.0132
CHINESE	-0.0441	1.0000	-0.0701	-0.0410	-0.0683	0.0	-0.7450	-0.0392	-0.0117
FILIPINO	-0.0351	-0.0201	1.0000	-0.0257	-0.0415	0.0	-0.1535	-0.0246	-0.0124
JAPANESE	-0.0105	-0.0410	-0.0757	1.0000	-0.0847	0.0	-0.3130	-0.0501	-0.0142
MEXICAN	-0.0041	-0.0663	-0.0415	-0.0247	1.0000	0.0	-0.5056	-0.0809	-0.0131
AMERICAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WHITE	-0.0697	-0.0441	-0.0351	-0.0716	-0.0683	0.0	1.0000	-0.2970	-0.0124
OTHER-RA	-0.0694	-0.0392	-0.0246	-0.0501	-0.0809	0.0	-0.2970	1.0000	-0.0132
PHY-HCAP	-0.0134	-0.0117	-0.0124	-0.0142	-0.0131	0.0	-0.0131	-0.0132	1.0000
SEA	1.0000	0.0004	-0.0441	-0.0105	-0.0041	0.0	0.0073	-0.0697	-0.0134
BLACK	0.0804	-0.0561	-0.0351	-0.0716	-0.1158	0.0	-0.4279	-0.0694	-0.0132
CHINESE	-0.0441	1.0000	-0.0701	-0.0410	-0.0683	0.0	-0.7450	-0.0392	-0.0117
FILIPINO	-0.0351	-0.0201	1.0000	-0.0257	-0.0415	0.0	-0.1535	-0.0246	-0.0124
JAPANESE	-0.0105	-0.0410	-0.0757	1.0000	-0.0847	0.0	-0.3130	-0.0501	-0.0142
MEXICAN	-0.0041	-0.0663	-0.0415	-0.0247	1.0000	0.0	-0.5056	-0.0809	-0.0131
AMERICAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WHITE	-0.0697	-0.0441	-0.0351	-0.0716	-0.0683	0.0	1.0000	-0.2970	-0.0124
OTHER-RA	-0.0694	-0.0392	-0.0246	-0.0501	-0.0809	0.0	-0.2970	1.0000	-0.0132
PHY-HCAP	-0.0134	-0.0117	-0.0124	-0.0142	-0.0131	0.0	-0.0131	-0.0132	1.0000
SEA	1.0000	0.0004	-0.0441	-0.0105	-0.0041	0.0	0.0073	-0.0697	-0.0134
BLACK	0.0804	-0.0561	-0.0351	-0.0716	-0.1158	0.0	-0.4279	-0.0694	-0.0132
CHINESE	-0.0441	1.0000	-0.0701	-0.0410	-0.0683	0.0	-0.7450	-0.0392	-0.0117
FILIPINO	-0.0351	-0.0201	1.0000	-0.0257	-0.0415	0.0	-0.1535	-0.0246	-0.0124
JAPANESE	-0.0105	-0.0410	-0.0757	1.0000	-0.0847	0.0	-0.3130	-0.0501	-0.0142
MEXICAN	-0.0041	-0.0663	-0.0415	-0.0247	1.0000	0.0	-0.5056	-0.0809	-0.0131
AMERICAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WHITE	-0.0697	-0.0441	-0.0351	-0.0716	-0.0683	0.0	1.0000	-0.2970	-0.0124
OTHER-RA	-0.0694	-0.0392	-0.0246	-0.0501	-0.0809	0.0	-0.2970	1.0000	-0.0132
PHY-HCAP	-0.0134	-0.0117	-0.0124	-0.0142	-0.0131	0.0	-0.0131	-0.0132	1.0000
SEA	1.0000	0.0004	-0.0441	-0.0105	-0.0041	0.0	0.0073	-0.0697	-0.0134
BLACK	0.0804	-0.0561	-0.0351	-0.0716	-0.1158	0.0	-0.4279	-0.0694	-0.0132
CHINESE	-0.0441	1.0000	-0.0701	-0.0410	-0.0683	0.0	-0.7450	-0.0392	-0.0117
FILIPINO	-0.0351	-0.0201	1.0000	-0.0257	-0.0415	0.0	-0.1535	-0.0246	-0.0124
JAPANESE	-0.0105	-0.0410	-0.0757	1.0000	-0.0847	0.0	-0.3130	-0.0501	-0.0142
MEXICAN	-0.0041	-0.0663	-0.0415	-0.0247	1.0000	0.0	-0.5056	-0.0809	-0.0131
AMERICAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WHITE	-0.0697	-0.0441	-0.0351	-0.0716	-0.0683	0.0	1.0000	-0.2970	-0.0124
OTHER-RA	-0.0694	-0.0392	-0.0246	-0.0501	-0.0809	0.0	-0.2970	1.0000	-0.0132
PHY-HCAP	-0.0134	-0.0117	-0.0124	-0.0142	-0.0131	0.0	-0.0131	-0.0132	1.0000
SEA	1.0000	0.0004	-0.0441	-0.0105	-0.0041	0.0	0.0073	-0.0697	-0.0134
BLACK	0.0804	-0.0561	-0.0351	-0.0716	-0.1158	0.0	-0.4279	-0.0694	-0.0132
CHINESE	-0.0441	1.0000	-0.0701	-0.0410	-0.0683	0.0	-0.7450	-0.0392	-0.0117
FILIPINO	-0.0351	-0.0201	1.0000	-0.0257	-0.0415	0.0	-0.1535	-0.0246	-0.0124
JAPANESE	-0.0105	-0.0410	-0.0757	1.0000	-0.0847	0.0	-0.3130	-0.0501	-0.0142
MEXICAN	-0.0041	-0.0663	-0.0415	-0.0247	1.0000	0.0	-0.5056	-0.0809	-0.0131
AMERICAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WHITE	-0.0697	-0.0441	-0.0351	-0.0716	-0.0683	0.0	1.0000	-0.2970	-0.0124
OTHER-RA	-0.0694	-0.0392	-0.0246	-0.0501	-0.0809	0.0	-0.2970	1.0000	-0.0132
PHY-HCAP	-0.0134	-0.0117	-0.0124	-0.0142	-0.0131	0.0	-0.0131	-0.0132	1.0000
SEA	1.0000	0.0004	-0.0441	-0.0105	-0.0041	0.0	0.0073	-0.0697	-0.0134
BLACK	0.0804	-0.0561	-0.0351	-0.0716	-0.1158	0.0	-0.4279	-0.0694	-0.0132
CHINESE	-0.0441	1.0000	-0.0701	-0.0410	-0.0683	0.0	-0.7450	-0.0392	-0.0117
FILIPINO	-0.0351	-0.0201	1.0000	-0.0257	-0.0415	0.0	-0.1535	-0.0246	-0.0124
JAPANESE	-0.0105	-0.0410	-0.0757	1.0000	-0.0847	0.0	-0.3130	-0.0501	-0.0142
MEXICAN	-0.0041	-0.0663	-0.0415	-0.0247	1.0000	0.0	-0.5056	-0.0809	-0.0131
AMERICAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WHITE	-0.0697	-0.0441	-0.0351	-0.0716	-0.0683	0.0	1.0000	-0.2970	-0.0124
OTHER-RA	-0.0694	-0.0392	-0.0246	-0.0501	-0.0809	0.0	-0.2970	1.0000	-0.0132
PHY-HCAP	-0.0134	-0.0117	-0.0124	-0.0142	-0.0131	0.0	-0.0131	-0.0132	1.0000
SEA	1.0000	0.0004	-0.0441	-0.0105	-0.0041	0.0	0.0073	-0.0697	-0.0134
BLACK	0.0804	-0.0561	-0.0351	-0.0716	-0.1158	0.0	-0.4279	-0.0694	-0.0132
CHINESE	-0.0441	1.0000	-0.0701	-0.0410	-0.0683	0.0	-0.7450	-0.0392	-0.0117
FILIPINO	-0.0351	-0.0201	1.0000	-0.0257	-0.0415	0.0	-0.1535	-0.0246	-0.0124
JAPANESE	-0.0105	-0.0410	-0.0757	1.0000	-0.0847	0.0	-0.3130	-0.0501	-0.0142
MEXICAN	-0.0041	-0.0663	-0.0415	-0.0247	1.0000	0.0	-0.5056	-0.0809	-0.0131
AMERICAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WHITE	-0.0697	-0.0441	-0.0351	-0.0716	-0.0683	0.0	1.0000	-0.2970	-0.0124
OTHER-RA	-0.0694	-0.0392	-0.0246	-0.0501	-0.0809	0.0	-0.2970	1.0000	-0.0132
PHY-HCAP	-0.0134	-0.0117	-0.0124	-0.0142	-0.0131	0.0	-0.0131	-0.0132	1.0000
SEA	1.0000	0.0004	-0.0441	-0.0105	-0.0041	0.0	0.0073	-0.0697	-0.0134
BLACK	0.0804	-0.0561	-0.0351	-0.0716	-0.1158	0.0	-0.4279	-0.0694	-0.0132
CHINESE	-0.0441	1.0000	-0.0701	-0.0410	-0.0683	0.0	-0.7450	-0.0392	-0.0117
FILIPINO	-0.0351	-0.0201	1.0000	-0.0257	-0.0415	0.0	-0.1535	-0.0246	-0.0124
JAPANESE	-0.0105	-0.0410	-0.0757	1.0000	-0.0847	0.0	-0.3130	-0.0501	-0.0142
MEXICAN	-0.0041	-0.0663	-0.0415	-0.0247	1.0000	0.0	-0.5056	-0.0809	-0.0131
AMERICAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WHITE	-0.0697	-0.0441	-0.0351</						

## CORRELATION MATRIX (continued)

## Grade 2 - Mathematics

	TITLE-I	BIL-PRGM	REMED-RD	MIL-U-RD	FOL-THRU	HEADSTR	OTHER-SP	SES	BIL. CES	T-EXP.-F
SEX	-0.0029	-0.0426	-0.0303	-0.0201	0.0436	-0.0300	-0.0793	0.0540	0.0622	-0.0574
BLACK	0.0930	-0.0351	-0.0206	0.0253	0.1457	-0.0248	-0.1094	-0.0865	0.0807	-0.0246
CHINESE	-0.0116	-0.0701	-0.0373	-0.0419	-0.0082	-0.0142	-0.0558	0.1094	0.0462	0.0799
FILIPINO	-0.0072	-0.0126	-0.0234	-0.0263	-0.0051	-0.0089	-0.0265	-0.0232	-0.1047	0.1180
JAPANESE	-0.0148	-0.0257	-0.0476	-0.0535	-0.0104	-0.0181	-0.0755	0.0341	-0.0034	0.1043
MEXICAN	-0.0259	0.1885	0.1768	0.0285	-0.0169	0.1329	0.0177	-0.4346	-0.4680	-0.1433
AMERICAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WHITE	-0.0205	-0.0750	-0.0661	0.0160	-0.0623	-0.1092	0.1141	0.3364	0.3242	-0.0147
OTHER-R4	-0.0141	-0.0246	0.0043	-0.0063	-0.0100	-0.1991	0.0605	-0.0804	-0.0737	0.0663
PHY-PCAP	-0.0186	-0.0324	-0.1354	0.0028	-0.0131	-0.0228	0.1392	0.0498	-0.0021	0.1188
TITLE-I	1.0000	-0.0012	-0.0134	0.1304	-0.0029	-0.0051	0.0331	-0.0019	0.0167	-0.0359
BIL-PRGM	-0.0072	1.0000	0.0705	0.0581	-0.0051	-0.0089	0.0576	-0.1428	-0.0935	-0.0023
REMED-RD	-0.0134	0.0705	1.0000	-0.0018	0.2191	-0.0165	0.0132	-0.2055	-0.0625	-0.0251
MIL-U-RD	0.1304	0.0581	-0.0018	1.0000	0.1949	-0.0185	-0.0588	-0.1463	0.0297	-0.0640
FOL-THRU	-0.0029	-0.0012	0.2191	0.1949	1.0000	-0.0036	-0.0719	-0.0742	0.0113	-0.0418
HEADSTR	-0.0051	-0.0089	-0.0165	-0.0051	-0.0036	1.0000	-0.0483	-0.1147	-0.0623	-0.0441
OTHER-SP	0.0331	0.0576	0.0132	0.0581	0.0719	-0.0483	1.0000	0.0272	-0.1324	-0.0541
SES	-0.0019	-0.1428	-0.2055	-0.1463	-0.0742	-0.1147	0.0272	1.0000	0.8329	0.2052
BIL. CES	-0.0167	-0.0935	-0.0825	0.0297	0.0118	-0.0659	-0.1324	0.3329	1.0000	0.1464
T-EXP.-F	-0.0359	-0.0023	-0.2051	-0.0400	-0.0417	-0.0441	-0.0552	0.2052	0.1354	1.0000
T-EXP.-S	-0.0428	-0.0342	-0.2004	-0.0701	-0.0729	-0.0424	-0.0647	0.1725	0.1329	0.7419
P-EXP.-F	-0.0084	-0.0443	-0.1130	-0.0187	0.0032	-0.0424	0.0034	0.1279	0.0832	0.4474
P-EXP.-S	-0.0429	-0.0096	-0.1014	-0.0533	-0.0303	-0.0419	0.0024	0.0978	0.0137	0.1232
S-EXP.-F	-0.0044	-0.0049	-0.0093	-0.0161	0.0636	0.0332	0.1036	0.1512	0.0509	0.2017
S-EXP.-S	-0.0283	-0.0372	-0.1177	-0.0875	0.0236	0.0074	0.0432	0.2038	0.0730	0.2017
ATT.-M-F	-0.0220	0.0393	0.0052	0.0016	0.0671	0.0568	-0.0539	-0.0816	0.0285	0.0619
ATT.-M-S	-0.0040	-0.0156	0.0488	0.0303	0.0701	0.0110	-0.0884	-0.1751	-0.1204	0.0013
CATMCM-F	-0.0110	-0.0627	-0.1890	-0.1674	-0.0542	-0.0047	0.1013	0.3118	-0.1476	0.4853
CATMCM-S	-0.0399	-0.0561	-0.1748	-0.1700	-0.0891	-0.0799	0.1174	0.0416	0.1359	0.5707
CATMCM-F	-0.0646	-0.0232	-0.1458	-0.1307	-0.0325	-0.0928	0.1089	0.3267	0.0760	0.3113
CATMCM-S	-0.0515	-0.0593	-0.1367	-0.1243	-0.0419	-0.0093	-0.0182	0.1711	0.0455	0.3113
MTAPL-F	-0.0437	-0.0692	-0.1256	-0.1826	-0.0477	-0.0536	0.0215	0.3304	0.1497	0.3522
MTAPL-S	-0.0160	0.0152	-0.1235	-0.1334	-0.0113	-0.0601	0.1095	0.3227	0.1528	0.4532
MTTOT-F	-0.0479	-0.0422	-0.1784	-0.1910	-0.0530	-0.0607	0.0863	0.4017	0.1524	0.4826
MTTOT-S	-0.0434	-0.0399	-0.1725	-0.1693	-0.0546	-0.0567	0.0777	0.3520	0.1278	0.5176
TOT-RES	-0.0083	0.0170	-0.0489	-0.0265	-0.0202	-0.0132	0.0140	0.0462	0.0089	0.2045
T-EX-RES	-0.0122	-0.0484	-0.0720	-0.0603	-0.0626	-0.0149	-0.0354	0.0303	0.0460	0.0000
S-EX-RES	-0.0284	-0.0086	-0.1212	-0.0870	-0.0033	-0.0035	0.0193	0.1637	0.0437	0.2211



## CORRELATION MATRIX (continued)

## Grade 2 - Mathematics

	I. EXP.-S	P. EXP.-E	P. EXP.-S	S. EXP.-F	S. EXP.-S	ATT.-M-F	ATT.-M-S	CATMCM-F	CATMCM-S	CATMCM-F
SEA	-0.0386	-0.0738	-0.1268	-0.1268	-0.0823	0.0437	0.0769	-0.0610	-0.0566	-0.0566
BIL. CES	-0.0533	-0.0628	-0.0601	-0.0642	0.0324	0.1183	0.0917	-0.0534	-0.1194	-0.1194
I. EXP.-F	0.1276	0.0972	0.0707	0.0660	0.0091	0.0079	0.0298	0.0482	0.0318	0.0714
P. EXP.-S	0.0913	-0.0224	0.0353	0.0379	0.0582	0.0383	0.0371	-0.0145	0.0299	0.0683
S. EXP.-F	0.1727	-0.0608	0.0717	-0.0810	-0.0759	0.0738	0.1121	0.0570	0.0183	0.0079
ATT.-M-F	-0.1771	-0.0720	-0.0351	-0.1531	-0.1416	-0.0409	0.1681	-0.2267	-0.2613	-0.1687
ATT.-M-S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CATMCM-F	-0.0211	-0.0456	-0.0127	0.1460	0.0732	-0.1374	-0.2362	0.1514	0.2150	0.1436
CATMCM-S	0.0679	0.0469	0.0135	0.0189	0.0500	0.1105	0.0590	-0.0111	-0.0225	0.0399
P. EXP.-F	-0.1528	-0.0560	-0.0673	0.0372	-0.0840	-0.0724	-0.0697	-0.0422	-0.0707	-0.0311
TITLE-I	-0.0348	-0.0094	-0.0429	-0.0044	-0.0293	0.0220	-0.0040	-0.0110	-0.0399	-0.0846
BIL. PRGM	-0.0442	-0.0443	0.0096	-0.0899	-0.0372	0.0393	-0.0156	-0.0427	-0.0361	-0.0232
REMEDI-RO	-0.2004	-0.1438	-0.1914	-0.0093	-0.1177	0.0052	0.0488	-0.1890	-0.1748	-0.1494
FOL. THRU	-0.0701	-0.0147	-0.0533	-0.0161	-0.0875	0.0016	0.0393	-0.1674	-0.1700	-0.1307
PEDESTRI	-0.0427	-0.0424	-0.0419	0.0332	0.0235	0.0671	0.0701	-0.0542	-0.0391	-0.0325
OTHER-SP	-0.0447	-0.0074	0.0024	0.1036	0.0074	-0.0539	-0.0110	-0.0047	-0.0779	-0.0294
SES	0.1125	0.1229	0.0998	0.1512	0.2038	-0.0876	-0.1751	0.3718	0.4016	0.3217
BIL. CES	0.1370	0.0838	0.0187	0.0609	0.0610	0.0285	-0.1204	0.1476	0.1359	0.0853
I. EXP.-F	0.1417	0.4478	0.4392	0.2269	0.2826	0.0615	0.0023	0.4253	0.5207	0.3943
P. EXP.-S	1.0000	0.4739	0.4999	0.3366	0.3224	0.0672	0.0374	0.5213	0.5667	0.4574
P. EXP.-F	0.4239	1.0000	0.6523	0.2324	0.2236	0.0143	0.0048	0.3597	0.3418	0.3125
S. EXP.-S	0.4999	0.6523	1.0000	0.2476	0.2702	0.0527	0.0500	0.3586	0.3136	0.3410
S. EXP.-F	0.3366	0.2374	0.2476	1.0000	0.3231	0.0519	-0.0143	0.4145	0.4443	0.4375
S. EXP.-S	0.3224	0.2236	0.2702	0.3231	1.0000	0.0663	0.0432	0.3620	0.4455	0.3876
ATT.-M-F	0.0672	0.0143	0.0527	0.0519	0.0663	1.0000	0.3439	-0.0029	-0.0567	-0.0371
ATT.-M-S	0.0374	0.0048	0.0500	-0.0140	0.0452	0.3439	1.0000	-0.1360	-0.0953	-0.0340
CATMCM-F	0.5213	0.3597	0.3586	0.4145	0.3620	-0.0669	-0.1350	1.0000	0.7633	0.5757
CATMCM-S	0.5867	0.3418	0.3736	0.4443	0.4455	-0.0587	-0.0953	0.7633	1.0000	0.5773
CATMCM-F	0.4574	0.3064	0.3436	0.4095	0.3876	-0.0371	-0.0836	0.5959	0.5773	1.0000
CATMCM-S	0.4660	0.3099	0.4118	0.3356	0.4323	0.0580	0.0636	0.5315	0.5735	0.5773
MTHAPL-F	0.4092	0.2528	0.2986	0.2929	0.3319	-0.0374	-0.0793	0.6185	0.6097	0.5773
MTHAPL-S	0.4631	0.2723	0.3164	0.3164	0.3338	-0.0526	-0.0916	0.5963	0.6547	0.6154
MTHICI-F	0.5412	0.3565	0.3909	0.4328	0.4237	-0.0552	-0.1154	0.8573	0.7710	0.8154
MTHICI-S	0.6021	0.3686	0.4431	0.4373	0.4845	-0.0163	-0.0425	0.7472	0.8728	0.8710
TOT-RES	0.2808	0.1379	0.2166	0.1503	0.2420	0.0473	0.0845	0.0977	0.4254	0.0259
I. EXP.-RES	0.6705	0.1367	0.2596	0.2420	0.1681	-0.0321	0.0532	0.2404	0.2590	0.2463
S. EXP.-RES	0.2277	0.1569	0.2010	-0.0000	0.9463	0.0524	0.0525	0.2410	0.3190	0.2898

## CORRELATION MATRIX (continued)

## Grade 2 - Mathematics

	CATMCM-S	MTHAPL-F	MTHAPL-S	MTHICT-F	MTHICT-S	TUT-RES	T-EX-RES	S-EX-RES
SEA	-0.1003	-0.0103	-0.0432	-0.0561	-0.0821	-0.0621	0.0053	-0.0457
BLACK	0.0080	-0.0107	-0.1643	-0.0763	-0.1052	-0.0737	-0.0478	0.0561
CHALISE	0.1155	0.0525	0.0242	0.0667	0.0900	0.0611	0.0748	-0.0060
FILIPINO	0.0705	-0.0139	0.0439	0.0140	0.0375	0.0440	0.0056	0.0436
JAPANESE	0.0643	-0.0038	0.0017	0.0214	0.0366	0.0326	0.1421	-0.0528
MEXICAN	-0.0535	-0.2341	-0.2435	-0.2406	-0.2238	-0.0389	-0.0293	-0.0274
SWEDISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WHITE	-0.0470	0.1759	0.2618	0.1671	0.1611	0.0180	-0.0165	0.0275
OTHER-RA	0.0349	-0.0418	-0.0390	-0.0192	-0.0083	0.0120	-0.0277	0.0464
PHY-HCAP	-0.1298	-0.0516	-0.0806	-0.0507	-0.1153	-0.1253	-0.0965	-0.1015
TITLE-I	-0.0515	-0.0437	-0.0160	-0.0479	-0.0434	-0.0083	-0.0122	-0.0284
ELL-PRCM	-0.0593	-0.0692	0.0152	-0.0622	-0.0399	-0.0170	-0.0484	-0.0086
REMEDI-RO	-0.1367	-0.1256	-0.1235	-0.1784	-0.1725	-0.0489	-0.0720	-0.1212
MIL-U-RD	-0.1243	-0.1826	-0.1334	-0.1910	-0.1693	-0.0265	-0.0603	-0.0470
FOL-THRU	-0.0419	-0.0477	-0.0113	-0.0530	-0.0546	-0.0202	-0.0626	0.0033
HEADSTRT	-0.0093	-0.0536	-0.0601	-0.0607	-0.0567	-0.0132	-0.0149	-0.0035
OTHER-SP	-0.0182	0.0215	-0.1095	0.0863	0.0777	0.0140	-0.0354	-0.0103
SES	0.1791	0.3304	0.3227	0.4037	0.3520	0.0452	0.0303	0.1637
BIL. CES	0.0405	0.1497	0.1526	0.1524	0.1278	0.0089	0.0460	0.0437
T-EXP.-F	0.3519	0.3922	0.4382	0.4926	0.5176	0.2045	0.0000	0.2211
P-EXP.-S	0.4668	0.4042	0.4631	0.5412	0.6021	0.2808	0.6205	0.2277
P-EXP.-F	0.3699	0.2528	0.2723	0.3565	0.3686	0.1379	0.1367	0.1569
P-EXP.-S	0.4118	0.2986	0.3164	0.3909	0.4431	0.2166	0.2596	0.2010
S-EXP.-S	0.3358	0.2931	0.3244	0.4328	0.4373	0.1503	0.2420	-0.0000
S-EXP.-S	0.4323	0.3319	0.3338	0.4237	0.4845	0.2420	0.1681	0.9403
ATT.-M-F	0.0580	-0.0374	-0.0526	-0.0552	-0.0163	0.0473	0.0321	0.0524
ATT.-M-S	0.0636	-0.0793	-0.0916	-0.1154	-0.0425	0.0845	0.0532	0.0525
CATMCM-F	0.5318	0.6186	0.5963	0.0573	0.7472	0.0977	0.2404	0.2410
CATMCM-S	0.5735	0.6079	0.6547	0.7110	0.8728	0.4254	0.2990	0.3190
CATMCM-F	0.5574	0.5083	0.5229	0.8156	0.6710	0.0259	0.2460	0.2608
CATMCM-S	0.4149	0.4072	0.4072	0.5849	0.8118	0.5743	0.3622	0.2506
CATMCM-F	0.5826	0.5826	0.5826	0.8629	0.6357	-0.0975	0.1875	0.2506
CATMCM-S	0.4149	0.4072	0.4072	0.5849	0.8118	0.5743	0.3622	0.2506
MTHAPL-F	0.4072	0.5826	0.5826	0.8629	0.6357	-0.0975	0.1875	0.2506
MTHAPL-S	0.5849	0.8629	0.8629	1.0000	0.8038	-0.0001	0.2621	0.2599
MTHICT-F	0.8118	0.6357	0.6357	0.8038	1.0000	0.5948	0.3252	0.3627
MTHICT-S	0.5743	-0.0975	0.4674	-0.0001	0.5948	1.0000	0.1925	0.2044
TOT-RES	0.3069	0.1875	0.2058	0.2621	0.3252	0.1925	1.0000	0.0949
T-EX-RES	0.3422	0.2566	0.2419	0.2599	0.3627	0.2044	0.0949	1.0000

## Grade 5 - Reading.

[illegible]

## CORRELATION MATRIX (continued)

## Grade 5 - Reading

	TITLE-I	BIL-PRGM	REMED-RO	MIL-U-PO	FOL-THRU	HEADSTRT	OTHER-SP	SES	BIL-CES	I-EXP--F
SEX	0.6270	-0.0057	-0.0327	0.0241	0.0	-0.0049	-0.1380	-0.0342	0.0595	0.1324
BLACK	-0.0533	-0.0380	-0.0346	0.0020	0.0	0.1649	-0.1213	-0.0974	0.0393	-0.0254
CHINESE	-0.0112	-0.0076	-0.0108	-0.0182	0.0	-0.0062	-0.0303	0.0120	0.0078	0.0331
FILIPINO	-0.0159	-0.0107	0.1045	-0.0238	0.0	-0.0087	-0.0430	-0.0978	0.0411	0.0543
JAPANESE	-0.0382	0.0478	-0.0367	-0.0620	0.0	-0.0210	-0.0394	0.0160	0.0267	0.1157
MEXICAN	0.1993	0.1222	-0.0161	0.0487	0.0	0.0343	-0.0749	-0.0343	-0.1677	-0.0594
AMERICAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WHITE	-0.1594	-0.1410	0.0567	0.0039	0.0	-0.1150	0.1581	0.3437	0.1177	0.0322
OTHER-RA	0.0301	0.1577	-0.0297	-0.0111	0.0	-0.0170	0.0159	-0.0784	-0.1163	-0.1144
PHY-FCAP	0.0059	-0.0278	-0.0396	-0.0366	0.0	-0.0227	0.0832	-0.0184	-0.0247	-0.0424
TITLE-I	1.0000	-0.0159	-0.0226	0.0121	0.0	-0.0130	-0.0637	-0.1841	0.0164	-0.0545
BIL-PRGM	-0.0159	1.0000	-0.0153	-0.0258	0.0	-0.0037	-0.0430	-0.0595	0.0111	-0.1133
REMED-RO	-0.0226	-0.0153	1.0000	-0.0367	0.0	-0.0124	0.1123	0.0515	0.0159	-0.2052
MIL-U-PO	0.0121	-0.0258	-0.0367	1.0000	0.0	0.1590	-0.0746	-0.2016	0.0267	-0.1475
FOL-THRU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEADSTRT	-0.0130	-0.0087	-0.0124	0.1590	0.0	1.0000	0.0246	-0.1499	-0.1565	-0.0327
OTHER-SP	-0.0637	-0.0430	0.1123	0.0246	0.0	0.0246	1.0000	0.2514	-0.0312	-0.0715
SES	-0.1841	-0.0595	0.0515	-0.2016	0.0	-0.1499	-0.2514	1.0000	0.0714	0.1475
BIL-CES	0.0164	0.0111	0.0158	0.0267	0.0	-0.1505	-0.0312	0.0714	1.0000	0.0561
I-EXP--F	-0.0645	-0.1133	-0.2052	-0.0975	0.0	-0.1475	-0.0715	0.0523	0.0573	0.5532
PHY-FCAP	-0.0188	-0.0849	-0.0471	-0.1562	0.0	-0.0367	-0.0660	0.1252	0.0861	0.0560
TITLE-I	0.0247	-0.0544	-0.0337	-0.1020	0.0	-0.0344	-0.0430	0.1256	0.1098	0.7950
BIL-PRGM	-0.0100	-0.0428	-0.0946	0.1020	0.0	-0.0474	-0.0282	0.1200	0.0523	0.5366
REMED-RO	0.0389	-0.0553	-0.0937	0.0142	0.0	-0.0348	-0.0900	0.0000	0.0573	0.3537
MIL-U-PO	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
FOL-THRU	0.0240	-0.0344	-0.1047	-0.0313	0.0	0.0076	-0.0455	0.0141	0.0363	0.3412
HEADSTRT	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
OTHER-SP	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
SES	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
BIL-CES	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
I-EXP--F	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
PHY-FCAP	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
TITLE-I	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
BIL-PRGM	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
REMED-RO	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
MIL-U-PO	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
FOL-THRU	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
HEADSTRT	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
OTHER-SP	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
SES	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
BIL-CES	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
I-EXP--F	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
PHY-FCAP	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
TITLE-I	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
BIL-PRGM	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
REMED-RO	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
MIL-U-PO	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
FOL-THRU	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
HEADSTRT	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
OTHER-SP	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
SES	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
BIL-CES	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
I-EXP--F	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
PHY-FCAP	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
TITLE-I	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
BIL-PRGM	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
REMED-RO	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
MIL-U-PO	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
FOL-THRU	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
HEADSTRT	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
OTHER-SP	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
SES	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
BIL-CES	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
I-EXP--F	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
PHY-FCAP	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
TITLE-I	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
BIL-PRGM	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
REMED-RO	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
MIL-U-PO	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
FOL-THRU	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
HEADSTRT	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
OTHER-SP	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
SES	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
BIL-CES	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
I-EXP--F	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
PHY-FCAP	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
TITLE-I	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
BIL-PRGM	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
REMED-RO	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
MIL-U-PO	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
FOL-THRU	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
HEADSTRT	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
OTHER-SP	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
SES	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
BIL-CES	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
I-EXP--F	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
PHY-FCAP	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
TITLE-I	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
BIL-PRGM	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
REMED-RO	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
MIL-U-PO	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
FOL-THRU	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
HEADSTRT	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
OTHER-SP	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
SES	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
BIL-CES	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
I-EXP--F	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
PHY-FCAP	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
TITLE-I	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
BIL-PRGM	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.0445	0.0277	0.3412
REMED-RO	-0.0343	-0.0423	-0.1284	-0.0429	0.0	-0.0117	-0.0829	0.04		



## CORRELATION MATRIX (continued)

## Grade 5 - Reading

	T.EXP.-S	P.EXP.-F	P.EXP.-S	S.EXP.-F	S.EXP.-S	ATT.-R-F	ATT.-R-S	CAT.-RC-F	CAT.-RC-S	RAPPLC-F
SEX	0.0975	0.0442	0.0423	0.0294	0.0294	0.1144	0.1113	0.0331	0.0517	0.1176
BLACK	-0.0481	-0.0196	-0.0222	-0.0160	-0.0160	0.1267	0.0958	-0.1993	-0.1857	-0.1823
CHINESE	0.0367	0.0446	0.0689	0.0322	0.0322	-0.0122	-0.0344	0.0253	0.0364	-0.0094
FILIPINO	0.0614	0.0400	0.0689	-0.0217	0.0387	-0.0173	-0.0487	0.0857	0.0732	0.0235
JAPANESE	0.0917	0.0188	0.0358	0.0436	0.0600	-0.0494	-0.0520	0.1666	0.1982	0.1281
MEXICAN	-0.0674	-0.0657	-0.0703	-0.0518	-0.0757	-0.0369	-0.0617	-0.1960	-0.1652	-0.1123
AMERICAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WHITE	-0.0096	0.0152	0.0006	-0.0580	-0.0121	-0.0123	0.0277	0.1773	0.1441	0.1544
OTHER-RA	0.0001	0.0444	0.0634	-0.0451	0.0082	-0.0462	-0.0235	-0.0449	-0.0615	-0.0561
PHY-HCAP	-0.0421	-0.0334	-0.0383	0.0667	0.0062	0.0328	-0.0141	-0.0474	-0.0171	-0.0790
TITLE-1	-0.0188	0.0247	-0.0100	0.0387	-0.0343	0.0960	0.0498	-0.1141	-0.1320	-0.0932
BIL-PRGM	-0.0869	-0.0544	-0.0428	-0.0553	-0.0523	-0.0944	-0.0632	-0.0759	-0.0512	-0.0404
REPED-RO	-0.1771	-0.0837	-0.0846	-0.0907	-0.1284	-0.1047	-0.1242	-0.0712	-0.0647	-0.1151
MIL-U-RO	-0.1562	-0.0975	-0.1020	-0.0142	-0.0429	-0.0313	-0.0689	-0.1599	-0.1642	-0.1875
FOL-THRU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEADSTRT	-0.0344	-0.0418	-0.0474	-0.0348	-0.0117	0.0076	-0.0790	-0.0444	-0.0833	-0.0741
OTHER-SP	-0.0860	-0.0433	-0.0222	-0.0900	-0.0829	-0.0797	-0.0455	-0.0766	0.1383	0.0241
SES	0.1262	0.1200	0.1256	0.0200	0.0445	0.0141	0.0725	0.3097	0.3307	0.2864
BIL-CES	0.1098	0.0523	0.0573	0.1094	0.0207	0.0363	0.0475	0.1126	0.1356	0.0925
T.EXP.-F	0.7900	0.5366	-0.5532	0.3597	0.3458	0.3493	0.3472	0.6294	0.5972	0.4978
T.EXP.-S	1.0000	0.5144	0.5664	0.3751	0.3599	0.3141	0.3481	0.6163	0.5878	0.4757
P.EXP.-F	0.5144	1.0000	0.8618	0.2372	0.1887	0.3104	0.2756	0.3971	0.3892	0.2719
P.EXP.-S	0.5464	0.8618	1.0000	0.2186	0.2063	0.3040	0.2924	0.3935	0.3937	0.2712
S.EXP.-F	0.3599	0.1887	0.2186	1.0000	0.4824	0.5094	0.4311	0.2617	0.2231	0.1971
S.EXP.-S	0.3141	0.2372	0.2186	0.4824	1.0000	0.3868	0.4677	0.3100	0.2936	0.2114
ATT.-R-F	0.4811	0.2756	0.3040	0.5094	0.3868	1.0000	0.6583	0.2994	0.2466	0.2219
ATT.-R-S	0.4163	0.3871	0.2924	0.4311	0.4677	0.6583	1.0000	0.2994	0.2466	0.2219
CAT.-RC-F	0.5878	0.3872	0.3937	0.2231	0.2936	0.2586	0.2994	1.0000	0.7542	0.5913
CAT.-RC-S	0.4757	0.2749	0.2712	0.1991	0.2117	0.2285	0.2296	0.7542	1.0000	0.5913
RAPPLC-F	0.5647	0.3458	0.3503	0.1820	0.2577	0.1975	0.2933	0.6937	0.5513	0.4917
RAPPLC-S	0.6004	0.3642	0.3598	0.2520	0.2650	0.2804	0.3159	0.6752	0.6354	0.5077
DECCOI-S	0.5497	0.3445	0.3267	0.2192	0.2432	0.2590	0.3109	0.7122	0.7044	0.5114
RACHMT-F	0.5831	0.3445	0.3652	0.1873	0.2554	0.2846	0.3262	0.6958	0.7122	0.4729
RACHMT-S	0.5188	0.3398	0.3516	0.2283	0.2636	0.2440	0.3109	0.8594	0.7708	0.8231
TOTRED-F	0.6430	0.3846	0.3948	0.2440	0.2951	0.2995	0.3246	0.7710	0.8818	0.5767
ICITRED-S	0.6298	0.4046	0.4127	0.2395	0.3070	0.2598	0.3482	0.4401	0.4401	-0.1542
TOT-RES	0.1884	0.1597	0.1597	0.0723	0.1167	0.0310	0.1463	0.1321	0.1892	-0.1434
T-EX-RES	0.6130	0.1476	0.1783	0.0723	0.1415	0.0622	0.1205	0.1942	0.1892	0.1434
S-EX-RES	0.2044	0.0448	0.1151	0.0000	0.8760	0.1610	0.2965	0.2098	0.2123	0.1317

## Grade 5 - Reading



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## CORRELATION MATRIX

## Grade 5 - Mathematics

SEX	BLACK	CHINESE	FILIPINO	JAPANESE	MEXICAN	AMERICAN	WHITE	OTHER-RA	PHY-MATH
SEX	1.0000	0.0104	0.0705	-0.0235	-0.0334	0.0	0.0066	-0.0131	-0.1060
BLACK	0.0104	0.0104	-0.0429	-0.1431	-0.1515	0.0	-0.5924	-0.0733	-0.3771
CHINESE	-0.0429	0.0104	-0.0071	-0.0172	-0.0252	0.0	-0.0921	-0.0139	0.7771
FILIPINO	0.0705	-0.0429	1.0000	-0.0243	-0.0358	0.0	-0.1306	-0.0197	-0.7771
JAPANESE	-0.0235	-0.1431	-0.0071	1.0000	-0.0953	0.0	-0.3134	-0.0472	-0.7771
MEXICAN	-0.0334	-0.1515	-0.0243	-0.0953	1.0000	0.0	-0.4606	-0.0694	-0.7771
AMERICAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WHITE	0.0066	-0.5924	-0.1306	-0.3134	-0.4606	0.0	1.0000	-0.2534	0.6645
OTHER-RA	-0.0733	-0.0139	-0.0638	-0.0638	-0.0634	0.0	-0.2534	1.0000	-0.7771
PHY-MATH	0.7771	0.7771	0.7771	0.7771	0.7771	0.7771	0.6645	-0.7771	1.0000
TITLE-1	0.0245	0.0318	-0.0106	-0.0105	0.0215	0.0	-0.1459	0.0119	0.7771
PFC-PRGM	-0.0067	-0.0429	-0.0101	0.0492	0.1238	0.0	-0.1306	0.4550	-0.7771
REMED-AD	0.0335	-0.0610	0.1052	0.0346	-0.0130	0.0	-0.0410	-0.0220	-0.7771
MIL-U-AD	0.0205	-0.0219	-0.0243	-0.0554	0.0535	0.0	0.0198	-0.0063	-0.7771
FCL-THRU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEADSRT	-0.0055	0.1356	-0.0083	-0.0198	0.0359	0.0	-0.1064	-0.0160	-0.7771
OTHER-SP	-0.1319	-0.1379	-0.0295	-0.0384	-0.3727	0.0	0.1739	0.0191	0.0115
SES	-0.0316	-0.0456	-0.0107	-0.0117	-0.3481	0.0	0.3053	-0.0910	-0.0137
ELL-CES	0.0591	0.0444	0.0074	0.0251	-0.1692	0.0	0.1090	-0.1178	-0.0252
T-EXP--F	0.0557	-0.0631	0.0738	0.1068	-0.0613	0.0	0.0064	0.0165	-0.0973
T-EXP--S	0.0047	-0.0617	0.0486	0.1067	-0.0577	0.0	-0.0110	0.0453	-0.0901
P-EXP--F	-0.0359	-0.0313	0.0772	0.1055	-0.0439	0.0	0.0167	0.0326	-0.0925
P-EXP--S	-0.0420	-0.0197	0.0150	0.1082	-0.0572	0.0	0.0119	0.0552	-0.0513
S-EXP--F	-0.0424	0.0078	-0.0151	0.0626	-0.0357	0.0	0.0036	-0.0410	-0.0925
S-EXP--S	0.0628	0.0716	0.0408	0.0985	-0.0281	0.0	-0.0459	0.0444	-0.1127
ATT--M-F	-0.0629	0.0992	-0.0340	-0.0647	-0.0351	0.0	-0.0280	0.0228	-0.0101
ATT--M-S	0.0022	0.0743	-0.0233	-0.0288	-0.0256	0.0	-0.0334	0.0332	-0.0101
GA1MCA--F	0.0146	-0.1879	0.0147	0.1857	-0.1133	0.0	0.1171	0.0017	-0.0775
GA1MCA--S	0.0803	-0.1671	0.0521	0.2155	-0.1228	0.0	0.0822	-0.0055	-0.0355
GA1MCA--F	0.0414	-0.1903	0.0120	0.1268	-0.0711	0.0	0.0767	0.0484	-0.1019
GA1MCA--S	0.0763	-0.2036	0.0377	0.2176	-0.0723	0.0	0.0362	-0.0044	-0.1019
GA1MCA--F	-0.0053	-0.2781	0.0447	0.1318	-0.0930	0.0	0.0200	-0.0741	-0.0775
GA1MCA--S	-0.0528	-0.2796	0.0444	0.1272	-0.1252	0.0	0.2122	0.0026	-0.0542
WTHAPL--F	0.0151	-0.2617	0.0315	0.1865	-0.1017	0.0	0.1680	-0.0213	-0.0759
WTHAPL--S	0.0254	-0.2518	0.0488	0.2013	-0.1234	0.0	0.1561	-0.0019	-0.0719
WTHIGT--S	0.0238	-0.0553	0.0426	0.0811	-0.0702	0.0	0.0251	0.0312	-0.0523
TOT-RES	-0.0584	-0.0210	0.0190	0.0391	-0.0355	0.0	-0.0244	0.1123	-0.0357
T-EX-RES	0.0969	0.0192	-0.0005	0.0662	-0.0113	0.0	-0.0781	0.0737	-0.0771
S-EX-RES									

## CORRELATION MATRIX (continued)

## Grade 5 - Mathematics

TITLE-I	BIL-PRGM	REMED-RO	MAL-U-RO	FOL-THRU	HEADSIRI	OTHER-SP	SES	BIL-CES	T-EXP--F
SEX	0.0245	-0.0067	-0.0335	0.0	-0.0055	-0.1319	-0.0316	0.0591	0.0557
BLACK	0.0318	-0.0429	-0.0610	0.0	0.1356	-0.1379	-0.0456	-0.0444	-0.0631
CHINESE	-0.0104	-0.0071	-0.0102	0.0	-0.0058	0.0295	0.0107	0.0074	-0.0739
FILIPINO	-0.0150	-0.0101	0.1052	0.0	-0.0083	-0.0448	-0.0987	0.0105	0.0633
JAPANESE	-0.0360	0.0492	-0.0346	0.0	-0.0138	-0.0384	0.0117	0.0251	-0.1342
MEXICAN	0.2015	0.1238	-0.0130	0.0	0.0359	-0.0727	-0.3481	-0.1692	-0.5613
AMERICAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WHITE	-0.1459	-0.1306	0.0610	0.0	-0.1064	0.1739	0.3038	0.1080	0.3044
OTHER-RA	0.0318	0.1586	-0.0280	0.0	-0.0160	0.0191	-0.0810	-0.1178	0.0145
PHY-MCAP	0.0071	-0.0266	-0.0378	0.0	-0.0217	0.0815	-0.0137	-0.0252	-0.0879
TITLE-I	1.0000	-0.0150	-0.0213	0.0	-0.0122	-0.0619	-0.1850	0.1155	-0.0677
BIL-PRGM	-0.0150	1.0000	-0.0144	0.0	-0.0083	-0.0418	-0.0607	0.0105	-0.0429
REMED-RO	-0.0215	-0.0144	1.0000	0.0	-0.0117	0.1089	-0.0486	-0.0149	-0.1829
MAL-U-RO	0.0142	-0.0243	-0.0346	1.0000	0.1529	0.0236	0.2037	0.0251	-0.1355
FOL-THRU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEADSIRI	-0.0122	-0.0093	-0.0117	0.0	1.0000	0.0233	-0.1500	-0.1510	-0.0351
OTHER-SP	-0.0619	-0.0418	0.1089	0.0	-0.0238	1.0000	0.2391	-0.0302	-0.0413
SES	-0.1850	-0.0607	-0.0486	0.0	-0.1500	0.2391	1.0000	0.0725	-0.1685
BIL-CES	0.0155	0.0105	0.0149	0.0	-0.1510	-0.0302	0.0725	1.0000	0.0929
T-EXP--F	-0.0697	-0.0489	-0.1829	0.0	-0.0351	-0.0413	0.1685	0.0929	1.0000
OTHER-SP	-0.0362	-0.0303	-0.1632	0.0	-0.0086	-0.0533	0.1288	0.1156	0.7623
P-EXP--S	-0.0026	-0.0279	-0.0845	0.0	-0.0281	0.0137	0.1386	0.0398	0.5829
S-EXP--S	-0.0022	-0.0041	-0.0771	0.0	-0.0335	0.0332	0.1421	0.0586	-0.5598
ATT--N-F	0.0377	0.0039	-0.0910	0.0	-0.0496	-0.0053	0.1072	0.0678	0.3743
ATT--M-S	0.0028	0.0023	-0.1038	0.0	0.0483	-0.0238	0.0776	0.0198	0.3421
CATHCN-F	-0.1063	0.0321	-0.1053	0.0	0.0111	-0.0126	0.1008	0.0074	0.3743
CATHCN-S	-0.0795	0.0053	-0.0935	0.0	-0.0446	0.0938	0.3031	0.1414	0.5829
CATHCN-F	-0.0076	0.0150	-0.0991	0.0	-0.0773	0.1004	0.3122	0.1377	0.5829
CATHCN-S	-0.0099	0.0028	-0.0991	0.0	-0.0626	0.1129	0.3030	0.1154	0.5829
MTAPL-F	-0.1208	-0.0201	-0.0347	0.0	-0.1027	0.0974	0.3030	0.0874	0.5829
MTAPL-S	-0.0988	0.0266	-0.0547	0.0	-0.1134	0.1221	0.3065	0.1100	0.5829
MTHTOT-F	-0.1251	-0.0095	-0.0662	0.0	-0.0878	0.1295	0.3420	0.1039	0.5244
MTHTOT-S	-0.0956	-0.0083	-0.0883	0.0	-0.0849	0.1560	0.3456	0.1229	0.6244
TGT-RES	0.0205	-0.0020	-0.0607	0.0	-0.0194	0.0871	0.1040	0.0696	0.1450
T-EX-RES	0.0262	0.0108	-0.0368	0.0	0.0546	-0.0138	0.0005	0.0670	0.0001
S-EX-RES	-0.0511	0.0706	-0.0673	0.0	0.0843	-0.0244	0.0452	-0.0162	0.1720

## CORRELATION MATRIX (continued)

## Grade 5 - Mathematics

	I. EXP.-S	P. EXP.-T	P. EXP.-S	S. EXP.-F	S. EXP.-S	ALL.-M-F	ALL.-M-S	CATMCH-F	CATMCH-S	CATMCH-R
SEA	0.0647	-0.0379	-0.0420	-0.0424	0.0628	-0.0627	0.0022	0.0146	0.0308	0.0414
BLACK	-0.0017	-0.0313	-0.0197	0.0000	0.0216	0.0992	0.0143	-0.0179	-0.0101	-0.0193
CHINESE	0.0666	0.0197	0.0479	0.0151	0.0071	0.0343	-0.0002	0.0307	0.0031	0.0100
FILIPINO	0.0512	0.0112	0.0150	-0.0165	0.0458	-0.0340	-0.0233	0.0147	0.0521	0.0100
JAPANESE	0.0667	0.0195	0.0182	0.0426	0.0285	-0.0647	-0.0208	-0.0107	0.0155	0.0100
MEXICAN	-0.0097	-0.0438	-0.0472	-0.0357	-0.0281	-0.0351	-0.0256	-0.0133	-0.0128	-0.0711
AMERICAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WHITE	-0.0110	0.0147	0.0119	0.0036	-0.0653	-0.0280	0.0134	0.0171	0.0422	0.0107
OTHER-RA	0.0051	0.0326	0.0550	-0.0410	0.0434	0.0228	0.0138	0.0017	-0.0035	0.0434
PHY-PCAP	-0.0901	-0.0536	-0.0513	-0.0920	-0.1127	-0.0191	-0.0304	-0.0725	-0.0905	-0.0107
TITLE-I	-0.0362	-0.0026	-0.0022	0.0202	-0.0342	0.0177	0.0028	-0.0363	-0.0795	-0.0100
REL-PCAP	-0.0363	-0.0279	-0.0041	-0.0239	0.0923	0.0023	0.0021	-0.0051	0.0053	0.0100
REC-PCAP	-0.0632	-0.0445	-0.0471	-0.0910	-0.1038	-0.0927	-0.1053	-0.0535	-0.0921	-0.0100
MIL-PCAP	-0.0478	-0.0736	-0.0810	-0.0618	-0.1021	-0.0123	-0.0530	-0.0273	-0.0262	-0.0100
FOL-PCAP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEADSTRT	-0.0096	-0.0281	-0.0335	-0.0496	-0.0482	0.0125	0.0011	-0.0446	-0.0773	-0.0100
OTHER-SP	-0.0533	0.0147	0.0332	-0.0053	-0.0733	0.0230	-0.0126	0.0939	0.0004	0.0100
SES	0.1288	0.1386	0.1421	0.1072	0.0926	0.0999	0.1008	0.3031	0.3122	0.2471
REL-SES	0.1156	0.0398	0.0586	0.0678	0.0196	0.0083	0.0074	0.1414	0.1377	0.1100
I. EXP.-F	0.0423	0.0824	0.0506	0.0748	0.0361	0.0293	0.0360	0.0373	0.0567	0.0100
P. EXP.-F	0.0510	0.0930	0.0578	0.0414	0.0320	0.0313	0.0450	0.0804	0.0996	0.0100
P. EXP.-S	0.0748	0.0819	0.0817	0.0595	0.0460	0.0501	0.0373	0.0776	0.0405	0.0100
S. EXP.-F	0.0914	0.0381	0.0295	0.0000	0.0491	0.0308	0.0301	0.0356	0.0389	0.0100
S. EXP.-S	0.0370	0.0240	0.0279	0.0491	0.0279	0.0311	0.0420	0.0348	0.0362	0.0100
ATT.-M-F	0.0513	0.0521	0.0320	0.0508	0.0311	0.0000	0.0164	0.0205	0.0356	0.0100
ATT.-M-S	0.0500	0.0373	0.0400	0.0301	0.0490	0.0104	0.0000	0.0203	0.0347	0.0100
CATMCH-F	0.0804	0.0376	0.0309	0.0356	0.0348	0.0206	0.0238	0.0030	0.0247	0.0100
CATMCH-S	0.0596	0.0475	0.0426	0.0389	0.0363	0.0368	0.0367	0.0247	0.0000	0.0100
CATMCH-R	0.0216	0.0184	0.0239	0.0304	0.0315	0.0300	0.0371	0.0379	0.0337	0.0100
MTMCH-F	0.0639	0.0397	0.0431	0.0323	0.0348	0.0306	0.0458	0.0452	0.0287	0.0100
MTMCH-S	0.0496	0.0342	0.0284	0.0286	0.0213	0.0137	0.0121	0.0306	0.0265	0.0100
MTMCH-R	0.0446	0.0308	0.0221	0.0215	0.0284	0.0172	0.0269	0.0734	0.0416	0.0100
MTMCH-F	0.0405	0.0144	0.0366	0.0363	0.0324	0.0237	0.0323	0.0633	0.0763	0.0100
MTMCH-S	0.0495	0.0492	0.0424	0.0351	0.0362	0.0254	0.0307	0.0760	0.0481	0.0100
TOI-RES	0.0482	0.0267	0.0182	0.0144	0.0186	0.0058	0.0103	0.0642	0.0429	0.0100
T. EX-RES	0.0472	0.0169	0.0295	0.0188	0.0299	0.0154	0.0203	0.0732	0.0237	0.0100
S. EX-RES	0.0212	0.0938	0.0166	0.0000	0.0666	0.0468	0.0348	0.0150	0.0210	0.0100



## Grade 5 - Mathematics

SEX	CATCM-S	MIHAPL-F	MIHAPL-S	MIHIOI-F	MIHIOI-S	TOI-RES	T-EX-RES	S-EX-RES
BLACK	0.0763	-0.0053	-0.0528	0.0151	0.0254	0.0238	-0.0594	0.0769
CHINESE	-0.0236	-0.2731	-0.2796	-0.0217	-0.2518	-0.0553	-0.0172	0.0172
FIJIAN	0.0291	0.0691	0.0536	-0.0515	0.0538	0.0190	-0.0119	0.0005
JAPANESE	0.0327	0.0447	0.0444	0.0311	0.0488	0.0426	0.0138	0.0566
MEXICAN	0.2196	0.1318	0.1272	0.1805	0.2013	0.0811	0.0391	0.0662
AMERICAN	0.0723	-0.0830	-0.1252	-0.1017	0.1234	-0.0722	-0.0355	-0.0118
WHITE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER-RA	0.0862	0.2090	0.2122	0.1680	0.1561	0.0251	-0.0244	-0.0781
PHY-HCAP	-0.0044	-0.0741	0.0026	-0.0215	-0.0019	0.0312	0.1123	0.0737
TITLE-I	0.1089	-0.0379	-0.0572	-0.0750	0.0916	-0.0528	-0.0357	0.0771
BIL-PRGM	-0.2698	-0.1208	-0.0928	-0.1251	-0.0756	0.0205	0.0262	-0.0511
REMOVED-RD	0.0083	-0.0201	-0.0766	-0.0085	-0.0053	-0.0020	0.0108	0.0706
MIL-U-RD	0.1004	-0.0347	-0.0547	-0.0662	-0.0883	-0.0697	-0.0369	-0.0673
FCL-THRU	-0.1386	-0.1737	-0.1793	-0.2208	-0.2045	-0.0316	-0.0688	-0.0822
HEADSTRT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UTHER-SP	-0.0157	-0.1027	-0.1134	-0.0878	-0.0849	-0.0194	0.0546	0.0843
SES	0.0974	0.1221	0.1920	0.1295	0.1560	0.0871	-0.0338	-0.0244
REL-CES	0.3030	0.3009	0.3065	0.3420	0.3456	0.1040	0.0005	0.0452
Y-EXP-S	0.0874	0.1100	0.1039	0.1335	0.1229	0.0096	0.0670	-0.0162
T-EXP-S	0.5696	0.4966	0.5284	0.6262	0.6299	0.1850	0.0001	0.1720
P-EXP-F	0.6039	0.4996	0.5446	0.6405	0.6495	0.1989	0.6472	0.2712
S-EXP-S	0.3997	0.3142	0.3308	0.4144	0.4192	0.1267	0.1679	0.0938
S-EXP-F	0.4131	0.2824	0.3221	0.3946	0.4742	0.1692	0.2395	0.1366
S-EXP-S	0.3623	0.2286	0.2615	0.3363	0.3514	0.1244	0.1788	0.0000
S-EXP-S	0.3848	0.2133	0.2584	0.3324	0.3628	0.1846	0.2099	0.8456
ATT-M-F	0.3006	0.1387	0.1721	0.2397	0.2554	0.0978	0.1549	0.1468
ATT-M-S	0.4058	0.1921	0.2459	0.3123	0.3607	0.1803	0.2603	0.3488
CATMCH-F	0.6452	0.6356	0.6784	0.8630	0.7680	0.0642	0.2326	0.1585
CATMCH-S	0.7267	0.6265	0.6816	0.7763	0.8863	0.4298	0.2237	0.2160
CATMCH-F	0.7327	0.5926	0.6282	0.8366	0.7645	0.1093	0.2583	0.1807
CATMCH-S	1.0000	0.5473	0.6433	0.7189	0.8633	0.4789	0.2622	0.2353
MIHAPL-F	0.5473	1.0000	0.6860	0.8976	0.7685	-0.1050	0.1145	0.1145
MIHAPL-S	0.6433	0.6860	1.0000	0.7671	0.9075	0.4852	0.1870	0.1476
MIHIOI-F	0.7189	0.8976	0.7671	1.0000	0.8508	0.0904	0.2191	0.1468
MIHIOI-S	0.8633	0.7085	0.9075	0.8508	1.0000	0.5255	0.2615	0.2162
TOI-RES	0.4789	-0.1050	0.4852	0.0001	0.5255	1.0000	0.0994	0.

APPENDIX B  
Regression Results

2nd Grade Reading - Regression Results: Dependent Variable is Reading Retardation. Partial Standardized Correlation Coefficients (Beta). T-Statistics in Parentheses.

	1	2	3	4	5	6	7	8	9	10	11
Female	.0216	-.0057	.0213	.0767	.0297	.0065	-.0019	.0916			
Black	(.4735)	(.1293)	(.4692)	(.5624)	(.6691)	(.1628)	(.0215)	(.0042)			
Chinese	.0005	-.0008	-.0009	-.0033	-.0043	-.0044	-.0045	-.0046			
Filipino	(1.0627)	(1.0632)	(.9891)	(.1300)	(.9560)	(.9576)	(.0000)	(.0000)			
Japanese	.0097	.0061	.0062	.0074	.0075	.0076	.0077	.0078			
Mexican	(.6224)	(1.2638)	(1.4634)	(1.4638)	(1.4639)	(1.4640)	(1.4641)	(1.4642)			
Other Race	.0042	.0040	.0041	.0042	.0043	.0044	.0045	.0046			
Physical Handicap	(.4360)	(.9792)	(1.3923)	(1.2328)	(1.2329)	(1.2330)	(1.2331)	(1.2332)			
Title I	.0412	.0058	.0204	.0059	.0060	.0061	.0062	.0063			
Bilingual Program	(.8953)	(.1025)	(.6377)	(.1025)	(.1026)	(.1027)	(.1028)	(.1029)			
Remedial Reading	.0020	-.0011	-.0009	.0000	.0001	.0002	.0003	.0004			
Miller-Thruh Read.	(.6336)	(.0000)	(.1006)	(.0000)	(.0001)	(.0002)	(.0003)	(.0004)			
Follow Through	(.1476)	(.1477)	(.1478)	(.1479)	(.1480)	(.1481)	(.1482)	(.1483)			
Headware	(.6116)	(.6117)	(.6118)	(.6119)	(.6120)	(.6121)	(.6122)	(.6123)			
Other Special Prog.	(.6911)	(.6912)	(.6913)	(.6914)	(.6915)	(.6916)	(.6917)	(.6918)			
SES	(.0193)	(.0194)	(.0195)	(.0196)	(.0197)	(.0198)	(.0199)	(.0200)			
Bilingual Ability	(.4544)	(.4545)	(.4546)	(.4547)	(.4548)	(.4549)	(.4550)	(.4551)			
Teacher Exp.-Fall	(.0223)	(.0224)	(.0225)	(.0226)	(.0227)	(.0228)	(.0229)	(.0230)			
Peer Expect.-Fall	(.4757)	(.4758)	(.4759)	(.4760)	(.4761)	(.4762)	(.4763)	(.4764)			
Student Exp.-Fall	(.13492)	(.13493)	(.13494)	(.13495)	(.13496)	(.13497)	(.13498)	(.13499)			
Attitude Toward Read.-Fall	(.0515)	(.0516)	(.0517)	(.0518)	(.0519)	(.0520)	(.0521)	(.0522)			
Constant	(.9640)	(.9641)	(.9642)	(.9643)	(.9644)	(.9645)	(.9646)	(.9647)			
Degrees of Freedom	(5.6049)	(5.6050)	(5.6051)	(5.6052)	(5.6053)	(5.6054)	(5.6055)	(5.6056)			
$r^2$	.33	.6148	.32	.5761	.31	.3530	.47	.5306	.29	.7654	.37
	(.1546)	(.1547)	(.1548)	(.1549)	(.1550)	(.1551)	(.1552)	(.1553)	(.1554)	(.1555)	(.1556)
	456/18	455/19	455/19	455/19	455/19	455/19	455/19	455/19	455/19	455/19	455/19
	.0789	.1384	.0887	.0953	.0817	.1459	.1088	.1429	.1406	.1023	.1105

\*t > 1.286 p < .10  
 \*\*\*t > 1.645 p < .05  
 \*\*\*\*t > 2.326 p < .01



2nd Grade Mathematics - Regression Results: Dependent Variable is  
Mathematics Residual, Partial Standardized Correlation Coefficients (Beta), T-Statistic in Parentheses.

	1	2	3	4	5	6	7	8	9	10	11
Female	-.0548 (1.1838)	-.0422 (.9225)	-.0458 (.9925)	-.0375 (.8110)	-.0572 (1.2338)	-.0315 (.6849)	-.0307 (.6701)	-.0307 (.6701)	-.0443 (.9670)		
Black	-.0731* (1.5093)	-.0718* (1.5044)	-.0654* (1.3563)	-.0635* (1.3206)	-.0783* (1.6098)	-.0664* (1.3836)	-.0646* (1.3578)	-.0646* (1.3578)	-.0761* (1.5865)		
Chinese	.0452 (.9750)	.0354 (.7739)	.0366 (.7924)	.0422 (.9184)	.0436 (.9409)	.0318 (.6960)	.0345 (.7571)	.0345 (.7571)	.0343 (.7480)		
Filipino	.0391 (.8335)	.0139 (.2984)	.0408 (.8745)	.0344 (.7389)	.0365 (.7776)	.0150 (.3215)	.0138 (.2973)	.0138 (.2973)	.0121 (.2593)		
Japanese	.0233 (.5007)	.0054 (.1180)	.0244 (.5258)	.0367 (.7920)	.0188 (.4023)	.0164 (.3521)	.0182 (.4023)	.0182 (.4023)	.0020 (.0423)		
Mexican	.0219 (.3753)	-.0260 (.4517)	-.0247 (.4252)	-.0042 (.0722)	-.0200 (.3423)	-.0119 (.2061)	-.0119 (.2058)	-.0119 (.2058)	.0244 (.4231)		
Other Race	.0064 (.1358)	-.0113 (.2412)	-.0000 (.0003)	-.0073 (.1558)	.0006 (.0120)	-.0126 (.2677)	-.0082 (.1748)	-.0082 (.1748)	-.0159 (.3371)		
Physical Handicap	-.1283*** (-2.7325)	-.1117*** (-2.4033)	-.1224*** (-2.6185)	-.1302*** (-2.7987)	-.1261*** (-2.6850)	-.1136*** (-2.4493)	-.1155*** (-2.4951)	-.1155*** (-2.4951)	-.1102*** (-2.3677)		
Title I	-.0022 (.0470)	.0039 (.0854)	-.0019 (.0412)	-.0016 (.0354)	-.0031 (.0354)	.0024 (.0530)	.0035 (.0765)	.0035 (.0765)	.0031 (.0681)		
Bilingual Program	.0199 (.4243)	.0125 (.2706)	.0232 (.4985)	.0295 (.6338)	.0174 (.3700)	.0204 (.4409)	.0209 (.4530)	.0209 (.4530)	.0105 (.2274)		
Remedial Reading	-.0241 (.4918)	.0039 (.0795)	-.0124 (.2541)	-.0754 (.5232)	-.0241 (.3314)	.0002 (.0037)	-.0010 (.0211)	-.0010 (.0211)	.0036 (.0730)		
Miller-Unruh Read.	-.0170 (.2537)	-.0148 (.3125)	-.0154 (.3215)	-.0159 (.3342)	-.0159 (.3314)	-.0133 (.2817)	.0143 (.3029)	.0143 (.3029)	-.0140 (.2844)		
Follow Through	.0022 (.0451)	.0010 (.0218)	-.0040 (.0621)	-.0098 (.2042)	-.0003 (.0067)	-.0106 (.2223)	-.0080 (.1860)	-.0080 (.1860)	-.0010 (.0211)		
Headstart	-.0119 (.2559)	-.0052 (.1136)	.0068 (.1462)	-.0205 (.4439)	-.0143 (.3057)	.0130 (.2816)	-.0128 (.2782)	-.0128 (.2782)	-.0072 (.1570)		
Other Special Prog.	.0230 (.4843)	.0278 (.5926)	.0222 (.4687)	.0103 (.2168)	.0237 (.4989)	.0177 (.3777)	.0173 (.3698)	.0173 (.3698)	.0283 (.6033)		
SES	.0268 (.4922)	-.0018 (.0328)	.0176 (.3246)	.0122 (.2255)	.0316 (.5796)	-.0053 (.0972)	-.0090 (.1660)	-.0090 (.1660)	.0026 (.0471)		
Bilingual Ability	.0061 (.1123)	-.0143 (.2648)	-.0013 (.0240)	.0067 (.1228)	.0035 (.0642)	-.0134 (.2476)	-.0131 (.2057)	-.0131 (.2057)	-.0163 (.2997)		
Teacher Exp.-Fall										.2023*** (4.5179)	.1666*** (3.1375)
Peer Expect.-Fall											.0412 (.8877)
Student Exp.-Fall											.0349 (.7056)
Attitude Toward Mathematics-Fall											.0315 (.7056)
Constant	-.1.8212 (.0964)	-.8502 (.0456)	-.9024 (.0480)	-13.7412 (.7188)	-3.9030 (.2055)	-10.7655 (.5644)	-16.8226*** (4.1966)	-10.1203 (.5336)	-2.5722 (.1373)	-10.4605*** (3.3109)	-17.8822*** (3.8753)
Degrees of Freedom	464/18	463/19	463/19	463/19	463/19	460/22	479/3	462/20	462/20	479/3	477/5
r <sup>2</sup>	.0347	.0637	.0474	.0342	.0371	.0766	.0532	.0745	.0653	.0430	.0555

\*t > 1.286 p < .10

\*\*t > 1.645 p < .05

\*\*\*t > 2.326 p < .01

5th Grade Reading - Regression Results: Dependent Variable is Reading Residual, Partial Standardized Correlation Coefficients (Beta), t-Statistic in Parentheses.

	1	2	3	4	5	6	7	8	9	10	11
Sex	.0331 (.7870)	.0085 (.2035)	-.0284 (-.6826)	.0321 (.7671)	.0276 (.6543)	.0141 (.3377)		.0091 (.2181)	.0194 (.4555)		
Black	-.0517 (-1.3992)	-.0454 (-1.2629)	-.0564 (-1.3375)	-.0495 (-1.6425)	-.0326 (-1.5091)	-.0452 (-1.2445)		-.0157 (-1.3077)	-.0326 (-1.2133)		
Chinese	.0564** (1.2245)	.0317 (1.1164)	-.0454 (-1.161)	.0495 (1.1967)	.0326 (1.2844)	.0452 (1.1345)		.0157 (.3377)	.0326 (.7411)		
Filipino	.0564** (1.3403)	.0317 (.9589)	.0491 (1.1533)	.0572** (1.3619)	.0386 (.9299)	.0404 (.9744)		.0191 (.4555)	.0391 (.8825)		
Japanese	.0706** (1.6728)	.0501 (1.2043)	.0689** (1.6481)	.0658** (1.5604)	.0728** (1.7233)	.0495 (1.1822)		.0490 (1.1954)	.0490 (1.1711)		
Mexican	-.0128 (-.2712)	-.0161 (-.3458)	-.0119 (-.2529)	-.0115 (-.2429)	-.0116 (-.2457)	-.0154 (-.3322)		-.0165 (-.3370)	-.0165 (-.3356)		
Other Race	-.0186 (-.4317)	-.0140 (-.3314)	-.0236 (-.6673)	-.0174 (-.4048)	-.0172 (-.3981)	-.0206 (-.4703)		-.0135 (-.3288)	-.0135 (-.3342)		
Physical Handicap	-.0025 (-.0594)	.0030 (.0721)	.0018 (.0437)	-.0098 (-.2325)	.0031 (.0802)	.0033 (.0802)		.0013 (.0306)	.0013 (.0341)		
Title I	-.0483 (-1.1302)	-.0399 (-.9522)	-.0548** (-1.2954)	-.0511 (-1.1988)	-.0532 (-1.2409)	-.0418 (-.9881)		-.0383 (-.9706)	-.0383 (-.9558)		
Bilingual Program	.0175 (.4131)	.0418 (.9583)	.0269 (.6389)	.0218 (.5161)	.0218 (.5138)	.0404 (.9627)		.0419 (.9996)	.0419 (.9519)		
Remedial Reading	.0020 (.0488)	.0476 (1.1278)	.0157 (.3768)	.0083 (.1979)	.0070 (.1657)	.0448 (1.0597)		.0474 (1.1217)	.0474 (1.1216)		
Miller-Unruh Read.	-.0574** (-1.3372)	-.0322 (-.7596)	-.0465 (-1.0907)	-.0595** (-1.3908)	-.0536 (-1.2945)	-.0336 (-.7882)		-.0321 (-.7557)	-.0321 (-.7871)		
Headstart	.0390 (.9007)	.0338 (.7962)	.0386 (.9021)	.0424 (.9806)	.0386 (.8918)	.0360 (.8468)		.0338 (.7951)	.0338 (.7951)		
Other Special Prog.	.1333*** (3.2598)	.1582*** (3.6601)	.1516*** (3.4799)	.1497*** (3.4073)	.1464*** (3.3270)	.1595*** (3.6837)		.1577*** (3.6725)	.1577*** (3.6725)		
SES	.0501** (1.6603)	.0419 (.8740)	.0606 (1.2605)	.0780** (1.6217)	.0778** (1.6131)	.0403 (.8389)		.0416 (.8900)	.0416 (.8900)		
Bilingual Ability	.0945** (2.1997)	.0805** (1.9052)	.0873** (2.0510)	.0866** (2.0134)	.0935** (2.1757)	.0775** (1.8277)		.0793** (1.8115)	.0793** (1.8021)		
Teacher Exp.-Fall		.2090*** (4.7511)									
Peer Expect.-Fall			.1486*** (3.5505)								
Student Exp.-Fall			.0874** (2.0668)								
Attitude-Toward Read.-Fall											
Constant	-125.856 (-2.3863)	-118.4975 (-2.2896)	-118.2798 (-2.2644)	-128.3914 (-2.4410)	-128.6206 (-2.4379)	-115.1543 (-2.2186)		-119.2698 (-2.3012)	-117.4856 (-2.2648)		
Degrees of Freedom	54417	54718	54718	54718	54718	54421		546719	546719		
F <sup>2</sup>	.0893	.1062	.0902	.0765	.0720	.1089		.1064	.1064		

\*t > 1.286 p < .10

\*\*t > 1.645 p < .05

\*\*\*t > 2.326 p < .01

5th Grade Mathematics - Regression Results: Dependent Variable is Mathematics Residual. Partial Standardized Correlation Coefficients (Beta) - Statistic in Parentheses.

	1	2	3	4	5	6	7	8	9	10	11
Sex	.0273 (.6597)	.0211 (.5154)	.0320 (.7754)	.0332 (.8030)	.0335 (.8092)	.0272 (.6580)	.0353 (.6153)	.0249 (.6635)			
Black	-.0442 (-1.0250)	-.0336 (-.7851)	-.0412 (-.9591)	-.0447 (-1.0408)	-.0432 (-1.2304)	-.0379 (-.8769)	-.0353 (-.8258)	-.0392 (-.9077)			
Chinese	.0250 (.6108)	.0133 (.3278)	.0169 (.4135)	.0230 (.5661)	.0213 (.5222)	.0130 (.3189)	.0138 (.3408)	.0127 (.3124)			
Philipino	.0599* (1.4477)	.0455 (1.1023)	.0537* (1.3465)	.0594* (1.4392)	.0601* (1.4528)	.0478 (1.1565)	.0472 (1.1440)	.0470 (1.1396)			
Japanese	.0744** (1.7869)	.0608* (1.4687)	.0737** (1.7782)	.0695** (1.6749)	.0795** (1.9115)	.0626* (1.4999)	.0599* (1.4478)	.0647* (1.5571)			
African	-.0366 (-.7852)	-.0436 (-.9436)	-.0385 (-.8284)	-.0374 (-.8051)	-.0373 (-.8017)	-.0429 (-.9271)	-.0432 (-.9328)	-.0432 (-.9351)			
Other Race	.0311 (.7320)	.0428 (.5403)	.0260 (.6132)	.0342 (.8063)	.0281 (.6635)	.0245 (.5802)	.0256 (.6078)	.0222 (.5254)			
Physical Handicap	-.0560* (-1.3525)	-.0424 (-1.0299)	-.0493 (-1.1935)	-.0459 (-1.1080)	-.0534* (-1.2946)	-.0392 (-.9478)	-.0385 (-.9348)	-.0425 (-1.0333)			
Title I	.0518 (1.2800)	.0594* (1.4233)	.0497 (1.1863)	.0477 (1.1378)	.0468 (1.1149)	.0544* (1.2989)	.0560* (1.3416)	.0501* (1.3418)			
Bilingual Program	-.0889 (-2.064)	-.0511 (-1.2511)	.0032 (.0760)	-.0002 (-.0044)	-.0014 (-.0324)	.0084 (.2030)	.0090 (.2179)	.0074 (.2122)			
Remedial Reading	-.0129 (-.3051)	.0043 (.1008)	-.0089 (-.1894)	-.0088 (-.2105)	-.0159 (-.3458)	-.0472 (-1.1262)	-.0472 (-1.1276)	-.0477 (-1.1394)			
Miller-Unruh Read.	.0024 (.0576)	-.0025 (-.0585)	.0014 (.0327)	.0048 (.1133)	.0014 (.0335)	.0024 (.0562)	.0042 (.0991)	.0010 (.0212)			
Headstart	.0832** (1.9248)	.0906** (2.1152)	.0840** (1.9520)	.0841** (1.9538)	.0817** (1.8950)	.0892** (2.0786)	.0901** (2.1044)	.0891** (2.0782)			
Other Special Prog.	.0878** (1.8618)	.0605 (1.2781)	.0732* (1.5452)	.0772* (1.6373)	.0764* (1.6147)	.0567 (1.1953)	.0582 (1.2308)	.0576 (1.2155)			
SES	.0005 (.0128)	-.0152 (-.3615)	-.0039 (-.0914)	-.0052 (-.1231)	-.0000 (-.0005)	-.0152 (-.3607)	-.0163 (-.3872)	-.0139 (-.3293)			
Bilingual Ability		.1558** (3.6101)				.1231** (2.2732)	.1610*** (3.7117)	.1397*** (3.0430)			
Teacher Exp.-Fall			.1006*** (2.4257)			.0125 (.2439)					
Peer Expect.-Fall				.1032*** (2.4957)		.0472 (.9623)	.0584* (1.3316)				
Student Exp.-Fall					.0905** (2.1837)	.0223 (.4511)					
Attitude Toward Mathematics-Fall											
Constant	-.80976 (-21.05)	.7922 (.0208)	-4.7791 (-12.47)	-9.6958 (-2531)	-11.5172 (-3001)	-2.2340 (-.0584)	-1.3367 (-.0350)	-1.8322 (-.0479)			
Degrees of Freedom	581/17	581/18	581/18	581/18	581/18	577/21	579/19	579/19			
r <sup>2</sup>	.0413	.0624	.0510	.0515	.0492	.0658	.0653	.641			

\*p &lt; .10

\*\*p &lt; .05

\*\*\*p &lt; .01